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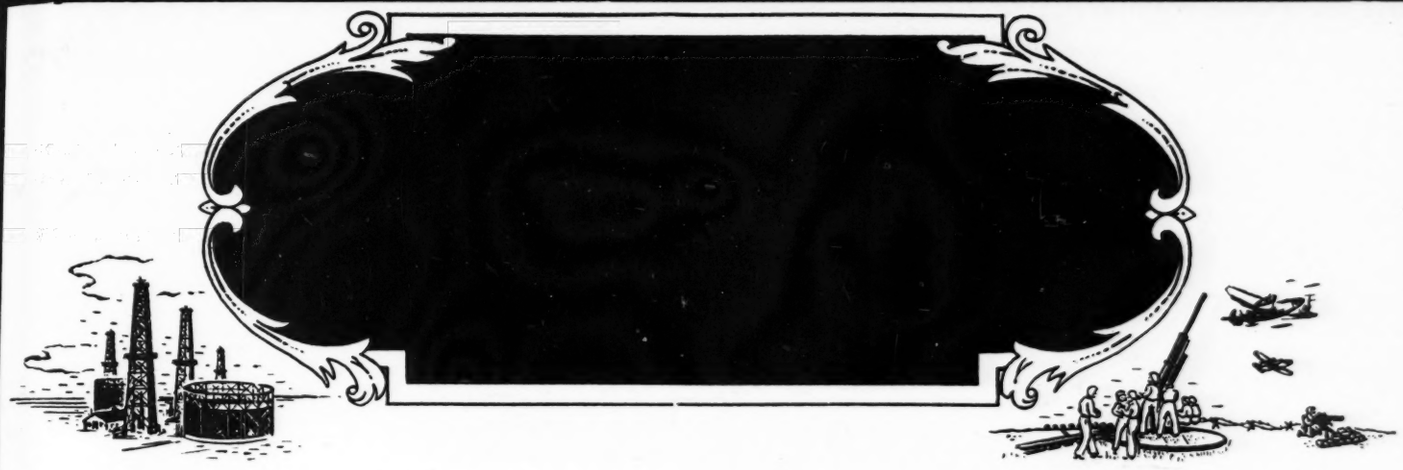

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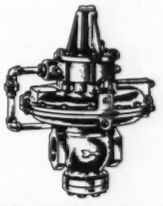

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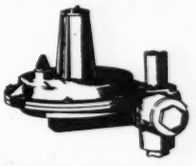

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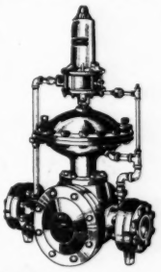

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Advertisers

American Brass Co.	4
American Meter Co.	12
American Recording Chart Co.	40
Blaw-Knox Co.	7
E. D. Bullard Co.	48
Burrell, George A.	50
Carbide & Carbon Chemicals Corp.	—
Cast Iron Pipe Research Ass'n	Second Cover
Chaplin-Fulton Manufacturing Co.	41
The Cleveland Trencher Co.	32
Connelly Iron Sponge & Governor Co.	43
The Cooper-Bessemer Corp.	—
Cribben & Sexton Co.	10
Dearborn Chemical Co.	—
Dresser Manufacturing Co.	8
Fisher Governor Co.	9
The Fluor Corp., Ltd.	3
General Controls	35
Greenlee Tool Co.	38
H-M Regulator Co.	36
H-M Thermo Control Co.	36
Handbook Butane-Propane Gases	49
Ingersoll-Rand	5
Johns-Manville	47
Jones & Laughlin Steel Corp.	—
Kitson Co.	48
Merco Nordstrom Valve Co.	33, 34
Milwaukee Gas Specialty Co.	50
Minneapolis-Honeywell Regulator Co.	—
Mueller Co.	46
National Tube Co.	—
Natural Gas Odorizing Co.	1
Pacific Gas & Electric Co.	31
Pacific Meter Works	12
Payne Furnace & Supply Co., Inc.	46
Pittsburgh Equitable Meter Co.	Front Cover
Reliance Regulator Corp.	6
Republic Steel Corp.	Third Cover
Reynolds Gas Regulator Co.	39
Robertshaw Thermostat Co.	—
Geo. D. Roper Corp.	37
The W. J. Schoenberger Co.	44
Semet-Solvay Engineering Corp.	42
Servel, Inc., Electrolux Division	—
Sharples Chemicals, Inc.	—
Spencer Thermostat Co.	44
Sprague Meter Co.	Fourth Cover
Union Carbide & Carbon Corp.	—
U. S. Pipe & Foundry Co.	—
United States Steel	—
Vulcan Proofing Co.	—

GAS

REG. U. S. PATENT OFFICE

Eighteenth Year of Publication

Contents for December, 1942

GUEST EDITORIAL: An All-Important Trend in Labor Relations—*By Guy W. Wadsworth, Jr.* 11

Thermally Thinking ..... *By Elliott Taylor* 13

Gas at War 14

Washington Notes; Controlled Materials Plan; Natural Gas Use in 1943; Oil Production in 1943; War Savings Ideas Needed; Employee Training; More on Scrap; Study the Draft; Utility Fleet Operation; Utility Rate Increases; Mobile Equipment for Emergency Repair; Experiments With Low Tin Solders; War Games in California; Wartime Advertising; Oil Equipment Pool.

FEATURE ARTICLES

The Government's Campaign to Conserve Gas 19

A Library Service for the Gas Industry ..... *By Julian F. Smith* 22

TECHNICAL TOPICS

Chemicals from Fuel Gases ..... *By Dr. Gustav Egloff & Dr. Hooper Linford* 24

Unitized Repressuring Project in New Mexico ..... *By W. K. Davis* 26

Modern Methods in Pipe Salvaging 27

Selling Natural Gas to the Railroads ..... *By D. W. Reeves* 28

MISCELLANY

FPC Rules on El Paso Rate Case 25

Washington Gas Light's New Home 30

FPC to Act on Tennessee Gas Line 36

A High B. t. u. Bond Sales Campaign 50

DEPARTMENTS

Abstracts ..... 38 People 42

Products ..... 40 Obituaries 48

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GUEST EDITORIAL

An All-Important Trend in Labor Relations

By GUY W. WADSWORTH, JR.

Vice President, Southern California Gas Co., Los Angeles, California

IF IT were really possible to see a forest for the trees, people with recent labor relations experience might detect one all-important trend. Labor is succeeding in writing rules to govern the relationships between boss and worker. As industry hires people in the future, it will have to meet and live up to certain conditions which, separate and apart from agreements covering wages, hours and working conditions, are specifically intended to preserve the self-respect of boss and worker alike.

This trend is somewhat obscured by other developments. Labor leadership is currently rubbing elbows with politics, and is successfully using this alliance to extend its wage-hour gains. As with any sudden acquisition of power, new forms of tyranny are spring up to replace very old ones. Perhaps, as Samuel Gompers warned the labor movement many years ago, governmental aid may bring on governmental mastery. However, instead of being a deliverance, this may prove cold comfort to both sides. In any case, labor's basic complaint against "capital," namely, the virtually obsolete control which the boss exercises over the worker's economic welfare, will persist as an essential fuel for a mass movement against those who undertake industrial enterprises.

The fact is that industry, in general, has met this issue with a code of evasions. We have been loath to supervise what goes on between boss and worker, as a matter of "good organization." We have been reluctant to set up hard and fast rules or special facilities to make sure that the "right to hire and fire" is exercised impartially. To install a board of review or to set up special avenues of appeal for the benefit of the worker, has been considered tantamount to giving up the "right to run the business." Because we have laid our own stymie on this point, outsiders are writing rules for us, and we do not like them.

Business has met conditions imposed by public regulation, and taxes which are punitive in effect. It has met codes of fair competition, and subsequently has endured charges of collusion for so doing, in the process. It has learned to comply with a myriad of restrictions and exactions which add not one cent to net revenue. But most of us will not get our house in order on labor relations until we are slugged over the head. We would rather exchange blows, and go down fighting, than admit that most people take aboard a supervisory job with little or nothing in the way of rules to guide them. Neither will we admit that most of us do not think straight in situations in which we figure personally.

Because these weaknesses are common to situations in which one human being is placed in authority over another, we should protect the man in charge by checking his decisions affecting manpower, just as we would check his handling of cash or material. When he ultimately finds that our act in so doing helps him to avoid mistakes, he will learn to value the review procedure as the good backing which it really is. The right to "do as you please" with authority is not an essential feature of legitimate supervision.

If industry takes this situation in hand, and imposes its own controls, a basic point of controversy will be minimized. It will also result in impartial discipline, where deserved, and a better all-around job in human relations.

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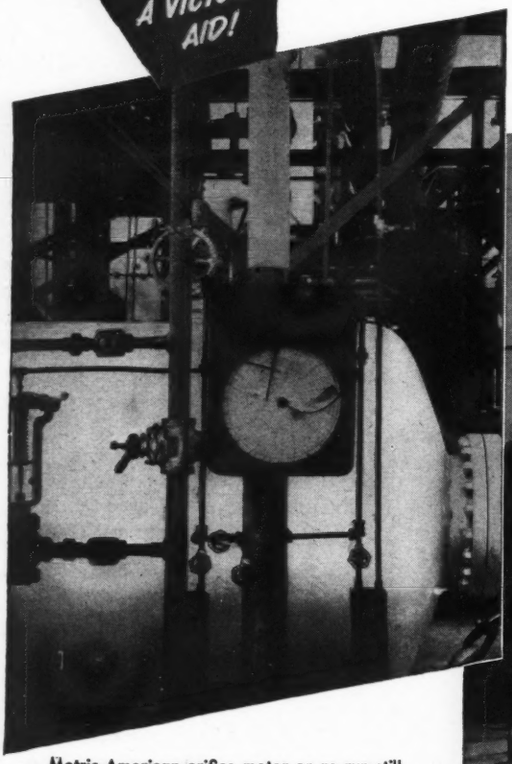
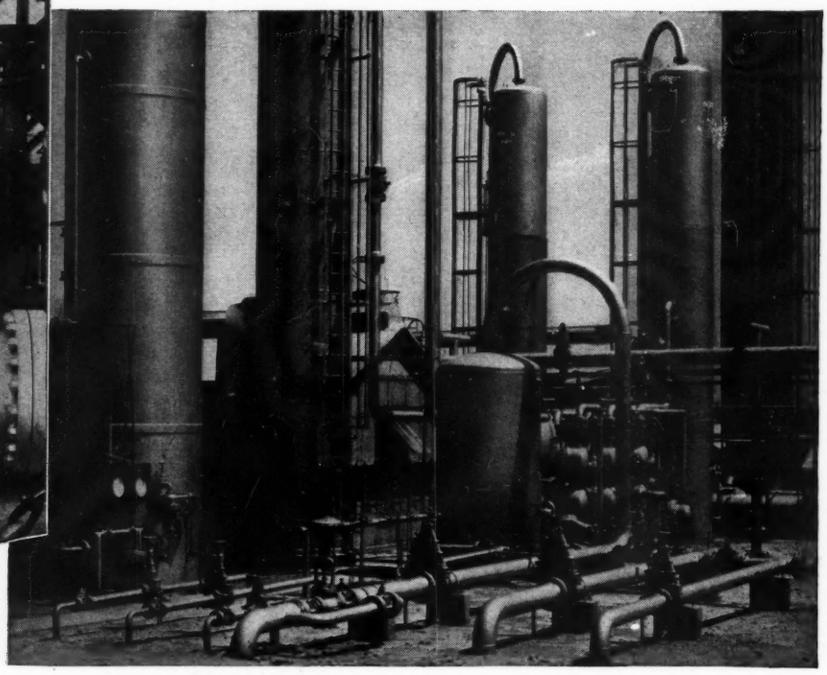


Metric-American orifice meter on re-run still.



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THERMALLY THINKING

By ELLIOTT TAYLOR, Washington Editor

Shortage Problems

IN the opinion of WPB, the danger of a shortage of natural gas within the next few months has grown to a very real possibility, and two steps have been taken to avert, at least temporarily, the impending calamity. Order L-31 has been revised (page 14) to include the whole country in its restrictions on deliveries of gas to non-residential users; and space heaters, supplying less than 50% of the heating for any dwelling, have been brought under the ban along with all other gas-fired heating equipment in the residential field.

The second step, undertaken in cooperation with the gas industry, has been one of public education in the question of gas conservation (page 19). For the present this is taking the form of WPB press releases designed to enlist public cooperation in conserving the use of gas, and a voluntary parallel program, mostly through the medium of paid advertising, being carried on by the gas companies.

It is said that WPB would be ready right now to institute rationing of gas, having in mind no doubt the disappointing results of the domestic oil burner conversion campaign, but no system of gas rationing has been schemed up that would not present almost insuperable administration difficulties. If the natural gas industry gets over the hump this winter, which with the exception of some curtailments in the Appalachian area it is likely to do, it may be that rationing will not be necessary; that new steel may be made available for necessary pipe line construction in 1943.

A straw in the wind is the recent statement by Holley Poe, director of the Natural Gas and Natural Gasoline Division of OPC, who said, "There is no doubt that there will be a need for increased (gas) transportation facilities from the great reserves of the Southwest." When a member of Mr. Ickes's staff makes a statement for public consumption, that statement can be taken as reflecting the views of Mr. Ickes as well as the speaker. And the boss of OPC is notoriously tenacious in expounding and pressing his views until they are translated into action. He is not afraid to cross words with WPB any time, whether it is just for practice or to keep the record clear, or because he believes that the national interests demand it. And since his office has the only integrated picture of the whole fuel situation constantly before it, and consistently kept up to date, all agencies must finally go there for the source material that guides either their public predictions or their anticipated actions. The emergency oil pipe line to the eastern states is now rushing toward completion because the Petroleum Coordinator wouldn't take "no" for an answer when the necessary steel was first requested from WPB.

Perhaps the greatest difference between the attitude of OPC and that of both WPB and OPA, as reflected by those members of the various staffs that we are privileged to contact when the occasion demands it, is one of attitude rather than of official policy. In OPC thinking appears to take the turn of trying first to find ways and means, consistent with war demands, to continue the essential functions and to utilize the existing managerial and directive talent of those industries that are under its jurisdiction. WPB and OPA, on the other hand, think first in terms of curtailment, rationing and elimination of the various conveniences and necessities that are vaguely classed as non-essential. Urbane and convincing speakers, looking universally well cared for and prosperous, delight to edify industry and the public with the criticism that we are "not thoroughly aroused"—that the fighting spirit, the willingness to sacrifice, the will to victory are not sufficiently developed. Even in private conversations the inescapable impression is given that the "privation is good for you" school of thought predominates, and that all management of industry is suspect until it has proven itself to be otherwise.

When and if an executive order is handed down enlarging OPC to Office of the Fuel Coordinator, we anticipate that the prospects of an early and decisive victory in the military arena will be enhanced, and that for the gas industry the road to that victory will be strewn with no more obstacles than the exigencies of war make inevitable.

■ ■

The Month

A realistic encouragement to the discontinuing of free services by utilities is lent by a recent release from OPA, which reads in part: "The discontinuance of such a free service rendered by a public utility in March, 1942, to all purchasers of gas or electricity would not be a violation of any presently issued price regulation." OPA opines that such a discontinuance of free service would constitute an increase in rates, but it is highly improbable that anything will be done about that. OPA has its hands full now trying to influence the state regulatory bodies to the extent that they will practically issue blanket refusals of all requests for rate increases. They are finding the going tough, and it is not likely that the Price Administrator's staff would further complicate matters by trying to institute rate reductions on the discovery that a gas company had moved its home service girls over to meter reading.

• •

The Controlled Materials Plan which is to gradually supersede the Production Requirements Plan spells more curtailment of the amounts of critical materials that will be available for public utility use. A little over a month ago an amendment to order P-46 cut 40% off the supplies of critical materials allowed for repair and maintenance, but the utilities were still operating outside of the scope and limitations of the PRP. Now, under CMP, they become just another group under the huge umbrella of the Office of Civilian Supply.

• •

FPC, charged with the responsibility of re-negotiating power contracts in the interest of cheaper electricity for war plants, may later turn its attention to gas rates wherever service is being supplied to plants working on direct war orders. So far FPC has not gone into the question of gas rates, but it is said to be in the offing.

GAS at WAR

Washington Notes

HEREWITH a resume of the principal orders issued by Washington which affect the gas utility industry.

Natural Gas (L-31): Impending gas shortages in many parts of the country caused WPB last month to tighten control over natural gas utilization. WPB hopes that the new restrictions plus voluntary conservation on the part of the consumer will avert serious shortages, according to Herbert S. Marks, acting chief of the WPB Power Branch. The revised orders are not in themselves adequate to prevent shortages, added Mr. Marks, and supplementary orders and directives dealing with particular localities will be required from time to time.

Principal changes in L-31 are:

1. Restrictions on new deliveries of gas to non-residential customers are made nation-wide. Previously the restrictions were limited to certain states. Nov. 30 is set as the deadline date for the installation of equipment which may be served in the new territories which have been added to the order. Earlier deadline dates for territories covered by previous orders remain the same. WPB approval now must be obtained for all new non-residential deliveries, except in the case of replacement of existing equipment.

2. In the case of residential customers, the prohibition against new gas deliveries will apply after Nov. 30 to all gas heating equipment. Heretofore this prohibition did not affect small unit heaters supplying less than 50% of the heating requirements of the premises. In addition, the areas covered by the residential restrictions of the order have been enlarged to include portions of Arizona and New Mexico.

3. After Nov. 30 the installation of gas equipment by both residential and non-residential consumers is prohibited if the delivery of gas for the operation of such equipment is not permitted under the order. This is intended to prevent a waste of critical materials in the installation of gas equipment which cannot be served because of a limited gas supply.

4. The schedule of curtailment to be followed by gas companies during anticipated shortages is in general continued, but is made more detailed. The purpose of the curtailment schedule is to protect war producers and essential civilian services in time of shortage. Whenever necessary, the director general for operations is authorized to require gas companies to curtail deliveries to residential consumers.

Restrictions on deliveries of natural gas for residential consumers under Limitation Order L-31 were extended Nov. 24 to sections of Kansas, Utah and Wyoming. Restrictions as to commercial and industrial users are already nation-wide. Six counties in Utah and two counties in southwest Wyoming are affected.

The Wyoming and Utah areas, served by the Mountain Fuel Supply Co., Salt Lake, were brought under the order because the company's supply of gas is inadequate to serve additional customers. The additional areas of Kansas brought under the order are served by the Panhandle Eastern Pipe Line Co. and utilities receiving all or part of their gas from that company.

The restrictions made applicable to the section of Wyoming, Utah and Kansas listed above provide that beginning Dec. 2, 1942, no utility may deliver natural gas to new residential consumers in those areas for the operation of space heating equipment unless such equipment was installed prior to Dec. 2, 1942, or, in the case of new construction, if gas heating equipment was specified in the contract, the foundation is completed prior to Dec. 18, and the equipment is installed by March 1, 1943.

Manufactured Gas (L-174): Revised at the same time as L-31, this order, which governs the production and distribution of manufactured gas, has been amended to conform closely to the new provisions of the natural gas order. The principal change is to prohibit the installation of gas equipment in cases where delivery of gas to such equipment is prohibited under the order. In addition, the amendment provides for the submission to WPB of curtailment schedules in advance of anticipated shortages.

Exemptions From L-174: WPB on Nov. 13 revised the ruling that manufactured gas companies could not sell additional supplies of industrial gas to certain customers unless liquefied petroleum gas standbys were provided by not later than July, 1943. The A. G. A. called attention to the difficulty in carrying out such procedure not only with respect to scarcity of materials but also because of the operating difficulties involved in substituting LP-Gas for manufactured gas on short notice. WPB advises that future releases from restrictions of L-174 would be accompanied by a letter directing the utility to inform the customer of impending shortages and to suggest that the customer investigate further the necessity for providing substitute fuel.

Cast Iron Low Pressure Boilers (L-187): This order prohibited the manufacture after Nov. 16 of low pressure cast iron boilers to use exclusively gas or exclusively oil as a fuel except as approved for military and hospital use. Repair and replacement parts may still be produced. Such boilers are defined as those designed to heat water to provide heat for building interiors through the circulation of steam or hot water, operating at a maximum working pressure of 15 lbs. per sq. in. steam pressure or 30 lbs. per sq. in. water pressure.

Domestic Heating Stoves (L-23-c): Class C manufacturers who have been authorized to continue manufacturing restricted models of domestic heating and cooking stoves will be further curtailed after Dec. 31, after which no Class C manufacturer shall use in any calendar quarter in the production of domestic heating stoves, iron and steel in excess of 50% of the monthly average used by the manufacturer in the base period.

Amendment No. 3 to the same order adds thermostats to the list of accessories which may not be attached in the production of domestic cooking stoves. The amendment becomes effective Dec. 26.

■ ■

Controlled Materials Plan

Establishment of a new Controlled Materials Plan Division and top appointments to its staff were announced Nov. 18 by J. A. Krug, deputy director general for distribution. Director of the CMP division and chairman of the Controlled Materials Board is Harold Boeschenstein, president and general manager of the Owens-Corning Fiberglass Corp., Toledo, Ohio. Assistant director is W. C. Skuce, supervisor of materials procurement, priorities and inventory control for the General Electric Co., Schenectady, N. Y.

In distributing materials under the Controlled Materials Plan, Mr. Boeschenstein and Mr. Skuce will work in close cooperation with Hiland G. Batcheller, Arthur H. Bunker and Harry O. King, directors, respectively, of the three controlled materials divisions—steel, aluminum and copper—and with the control officers of the claimant agencies.

The CMP Division includes the offices of the director and assistant director, a Controlled Materials Board and an Engineering Board of Review. The Controlled Materials Board will

be composed of representatives of the Army, Navy, Maritime Commission, Lend-Lease Administration, Board of Economic Warfare, Office of Civilian Supply, the chiefs of the Aluminum, Copper, Steel, Program and Facilities Divisions, a labor representative and a representative of the Resources Division.

Also established within the new division are a Scheduling Methods Branch, an Instruction, Inquiry and Service Branch and an Operations Branch.

The Controlled Materials Plan Division will be the agency charged with development and administration of the operating policies to govern CMP.

An extensive campaign of public education in the operating details of the Controlled Materials Plan is being worked out jointly by the CMP Division and the Division of Information of the War Production Board. The plan itself will not become operative until the second quarter of 1943, but it is essential that in the meantime those war producers who will be included under it become thoroughly familiar with its requirements, in order that they may draw their "bills of materials" for presentation to the several claimant agencies, such as the Army, Navy, Maritime Commission and the Office of Civilian Supply. It is on the basis of the "bills" that allotments of controlled materials will be computed.

■ ■

Natural Gas Use in 1943

An all-time high of more than three trillion cu. ft. of natural gas will be used in the United States next year, E. Holley Poe, of the Office of Petroleum Coordinator for War, told members of the American Petroleum Institute.

Mr. Poe said that at present the war industries of the Appalachian region are served entirely from gas fields in that area, but that "in the very near future, if that area is to be served adequately by the natural gas industry, thus freeing oil for other uses, there is no doubt that there will be a need for increased transportation facilities from the great reserves of the Southwest."

The OPC official expressed belief that unless some major pipe lines are constructed within the next 18 months, the Midwest will probably not have an adequate supply of gas to meet all demands.

■ ■

Oil Production in 1943

Oil producers probably will receive no more than 50% of their normal material requirements in 1943, Don R. Knowlton, of the Office of Petroleum Coordinator for War, predicted in a speech delivered in Chicago Nov. 11 at the annual meeting of the American Petroleum Institute.

Mr. Knowlton, who is director of OPC's production division, said that as a result of WPB's Conservation Order M-68, under which the use of materials by oil producers is regulated, some 13,000 fewer wells will have been drilled in 1942 than would have been drilled in a normal year. He said:

"The steel that would have been consumed in equipping the 13,000 wells is sufficient to build 26,000 fighting tanks."

Mr. Knowlton declared that selective drilling is bound to come. "And when it does," he added, "you will find drilling in some areas spread out to one well to 160 acres."

■ ■

War Savings Ideas Needed

Gas companies which have been successful in putting across individual drives for 10% payroll savings in War Bonds are urged to send their methods and ideas to the Payroll Savings Division, War Savings Staff, Treasury Department, 709 12th St., N. W., Washington, D. C.

It is hoped that these ideas can be relayed to other companies and thus aid them in reaching the 10% objective before New Year's Day.

"THEY GAVE THEIR ALL"

Private 1st Class James E. McBride, U. S. Marine Air Corps, killed Dec. 8, 1941, at Wake Island. Employee Lone Star Gas Co. of Dallas, Texas.

Ensign Preston Arnaune, missing June, 1942. Employee Houston Natural Gas Co., Houston, Texas.

Pilot Officer Paul R. Anderson, R. C. A. F., killed in London by German bombers. Employee Pacific Gas & Electric Co., San Francisco, Calif.

First Class Private Sylvester John Barraza, Jr., National Guard unit, died in Alaska after emergency operation. Employee Pacific Gas & Electric Co., San Francisco, Calif.

Luke Charles Rizzo, U. S. Army, died at Camp Barkley at Abilene. Employee United Gas Corp., Houston, Texas.

Albert William Proske, U. S. Army, died in Washington June 19, 1942. Employee United Gas Corp., Houston, Texas.

Walter Starkey, 200th Regiment of Coast Artillery, missing in action at Bataan. Employee El Paso Natural Gas Co., El Paso, Texas.

Private Alton H. Magee, U. S. Army, died Aug. 28, 1942, in New Mexico following emergency operation. Employee United Gas Pipe Line Co.

Chief Petty Officer Sylvan M. Duckett, Civil Engineering Corps, died Aug. 28. Employee United Gas Pipe Line Co.

Ensign James Hill Cook, killed in action "somewhere in the Pacific." Employee United Gas Pipe Line Co.

Private Robert F. Heimbrock, Marine Corps, killed in action. Employee Cincinnati Group, Columbia System.

Employee Training

THE difficult problems of office-employee shortages, which have left many large-scale businesses high and dry while clerical work piles up, are being solved at New Orleans Public Service Co., Inc., New Orleans, La., by a new program of "advance training" of young women to fill in at many posts.

Under this system, devised by Treasurer E. T. Colton of the New Orleans utility, young women desiring promotion already in the organization and promising girls hired through the personnel office are being trained in advance of the time when they will be actually needed. Each selected employee will be trained to replace other employees in all positions currently troublesome, or where men are likely to be called into military service in a matter of months. Some 20-odd positions of this type have been uncovered, and by quickly training a new employee it has been possible to continue operation of the department affected without a "hitch."

The emphasis is of course on women, who are being trained in bookkeeping, accounting, customer service, billing, research mail and other departments at present. "Although we have been able to hire sufficient young women for ordinary office positions, it has been next to impossible to find the trained experienced girl who can step into a new specialized job without a week or more of adjustments," Mr. Colton explained. "With things in this situation, we have begun the system of training several young women in our organization in the duties of others and in advance of vacancies. Thus trained they may step in without an interruption and take over their portion of the load when vacancies do occur.

"We are now substituting women for male employees in a large number of routine clerical positions, such as operators of comptometers, billing machines, postage meters, etc., and in the handling of company mailing departments. It has been found wise to train them as well for customer contact clerks, and for personal and telephone contact positions. Thus we are protecting ourselves against vacancies occurring at the worst possible time for stopping everything and training new people."

New Orleans Public Service has also installed time-saving equipment in all offices and simplified many operations with the goal of eliminating all "waste motion" and "red tape." As a result, the office help shortages existing in this city as in others have been met as well as possible.

Part of the huge scrap pile which constituted 4,000,000 lbs. of scrap metals collected during the first 10 months of this year by the Arkansas Natural Gas Corp., Shreveport, La., under the supervision of O. R. Boyet.

More on Scrap

The activities of various gas companies in "getting in the scrap" in the recent national drive were covered in the November issue of *GAS*, but reports from other companies are still coming in and are worthy of mention here.

Floyd H. Mason, advertising department, **Rochester Gas and Electric Corp.,** Rochester, N. Y., has prepared a poster illustrating his company's scrap efforts. It reveals that the efforts of the R. G. & E. resulted in garnering over 1400 tons of scrap iron, steel and copper and other metals for Uncle Sam. Among the contributions to the scrap pile from this company were five large steel transmission towers and a large three-ton safe from the general construction department. Collections were supervised by Baird Robinson, purchasing agent.

In reporting for his company, the **Louisville Gas & Electric Co.** Louisville, Ky., R. Montgomery, vice president in charge of sales, says that 174,933 lbs. of scrap metals was sold to scrap dealers between July 29 and Sept. 30. That amount does not include an estimated 620 tons of iron and steel now being removed from the Jackson St. gas plant which is obsolete equipment and is to be dispensed with. The Louisville Gas & Electric did not use any individual slogans, but rather followed the methods outlined by local newspapers and scrap drive committees.

Long before the official government call for scrap was made, the **Arkansas Louisiana Gas Co.** established a scrap department under the supervision of C. R. Boyet. Since the start of this campaign more than 2000 tons of scrap has been collected and delivered to salvage depots. In addition to the iron and steel scrap collected, more than 15 tons of brass and copper has been delivered to salvage depots. The company plans to continue to search for and collect all available scrap for the government.

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Study the Draft

An official of the Selective Service System at a meeting in New York City on Nov. 3 stated 1,000,000 men will be inducted into the Army this month and next month 2,000,000 more will be drafted by the end of 1943 to give this country an army of 7,500,000, according to an A. G. A. announcement.

He reported an "amazing ignorance" among employers of the procedure they must follow to obtain deferment for irreplaceable workers. He urged all employers to familiarize themselves with occupational deferment procedure so that applications would not continue to be filed on the day before employees are scheduled to be inducted into the Army.

He further stated that hundreds of thousands of men now in classes 3-A and 3-B will be reclassified into 1-A in the next few months "unless there is something in the draft board files to indicate they are irreplaceable."

This reclassification to 1-A because of recent government allowances for dependents will include those in 3-A and 3-B by reason of partial support of dependents. Employers should file at once the appropriate occupational deferment form for irreplaceable employees now in classes 3-A or 3-B.

Utility Fleet Operation

Under the forthcoming mileage rationing, mileage is divided into two classes — "occupational" and "preferred" — as it pertains to passenger automobiles. Under "occupational" mileage come all the things on the ineligible list as far as tire rationing is concerned. Under "preferred" there are very few things the utilities can do with passenger automobiles because of gas rationing. The OPA has decided to allot 470 miles per month that can be used for "occupational" mileage.

In connection with meter reading, an OPA official advises the 470 miles can be divided into any of those operations which were considered as ineligible under tire rationing. If the companies choose it for meter reading, they do not object, but that is all the companies will get for more or less nonessential use, provided there is no public transportation available.

Advice is that the new mileage regulations will permit, in the absence of any other form of transportation, the use of public utility passenger cars up to 470 miles per month per vehicle for operations formerly considered nonessential under the tire rationing regulations.

The following are considered as "occupational" mileage by the OPA:

Sales supervision.

Home cooking and lighting demonstrations.

Delivery and pickup of appliances.

Power and industrial engineering, except in connection with direct war activity and then only when public transportation is not available within half a mile.

Responding to general complaints from customers which do not involve an eligible maintenance or repair service.

Meter reading.

Collections.

Delivery of bills.

High bill complaints.

Delivering checks to employees or pensioners.

Trips by executives and supervisors between company offices where public transportation is available.

Safety activity for construction and inspection. Protective equipment can be transported for replacement and repair.

Inspection of property for insurance purposes.

All claim department activity.

All legal department use.

Engineering, except when directly connected with construction, maintenance and repair projects.

No inspections not listed herein.

Transportation of employees for the purpose of securing rights-of-way or contacting owners of overhanging trees.

Service of minor and portable appliances. All except large fixed appliances such as ranges, refrigerators, water heaters, furnaces, etc.

Periodic meter testing as required by state agencies.

All incidental services which do not relate to maintenance or construction.

Two important things utility fleet supervisors should remember in connection with passenger car operations are (1) that once a tire is listed with OPA as a passenger car tire, it must stay with the vehicle until it is worn out; (2) when the passenger tires wear out they cannot be replaced by transferring tires from those reserved for operation of commercial vehicles.

In connection with the certificates of necessity which should be issued to commercial vehicles by ODT, the face of the certificate shows the mileage and gasoline allotted to the individual vehicle by quarters. The Gas Rationing Board cannot raise or lower this quota but must issue coupons to cover the gasoline gallonage shown on the face of the certificate.

The language of General Order No. 21, and conferences with H. R. Stickel, executive assistant to Commissioner John L. Rogers, plainly indicates that this order is going to be used to enforce the limitation orders, directives and regulations affecting rubber-borne transportation regardless of the agency issuing the order, and that the best way for a fleet operator to keep out of trouble and keep vehicles in service is to operate according to the rules and maintain proper records that will stand up under checks made by ODT examiners.

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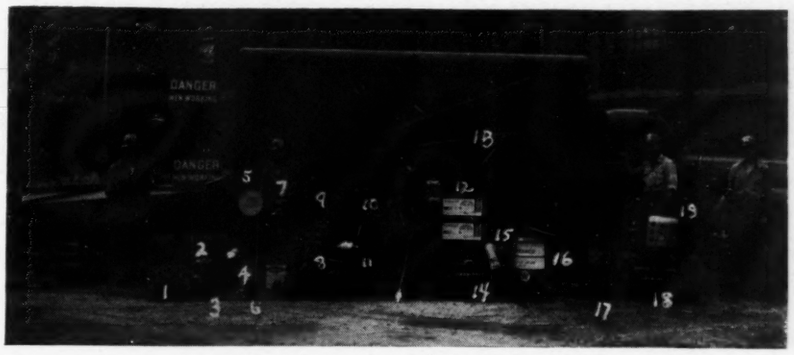
Utility Rate Increases

All increases in common carrier or other public utility rates or charges which affect a class of passengers, shippers or customers as distinguished from an increase chargeable to a particular customer or transportation service under special arrangement were defined as "general rate increases." The Emergency Price Control Act as amended requires that OPA be notified 30 days before any such "general rate increase" can go into effect.

The definition is contained in Procedural Regulation No. 11 effective Nov. 12 which specifies the form and manner in which common carriers and other public utilities must notify Price Administrator Henderson of proposed increases in rates under the Emergency Price Control Act, as amended by the act of Oct. 2, 1942. Two copies of the notice must be filed with the transportation and utilities division of the OPA in Washington.

The order further specifies that if authority for any regulatory body is required for establishment of the increased rates, the Price Administrator shall be notified on or before the time such authority is sought by the common carrier or public utility so that he may intervene in the proceedings



1. Dresser emergency split sleeves.
2. Gasoline, kerosene, and oil containers.
3. Six-inch gas snuffer for extinguishing flames in open pipe.
4. Water pails and soft soap used with snuffer.
5. Ditch light with stand.
6. (And lined up to right), red barricade lanterns.
7. (Below) Du Gas extinguisher.
8. Box containing circular air power saw for cutting holes in mains.
9. Box containing helmets and red signal flashlights.
10. The mine safety appliance gas detector (top), and (below), 4 and 6-in. main snuffers.
11. Box containing rain suits and boots.
12. Box containing asbestos suits.
13. The boom to be fahtened to truck rear to lift main.
14. Box containing pipe locator.
15. Coils of rope.
16. Box containing Lincoln pump, with drum of Bentonite (at left) used to seal mains.
17. A Thor Sump pump.
18. Box containing welding equipment.
19. Gas mask.

Other equipment carried on the truck (not pictured here) includes: a lighting machine, Waukesha pump, acetylene and oxygen tanks, a compressed air winch for boom, pipe fittings, barricades, ladder, air tools for breaking pavement, and cables for operating snuffers. Attached to the rear of the truck is a standard steel tool barrow with a complete set of street tools.

Emergency repair truck of Peoples Gas Light & Coke Co.

Mobile Equipment for Emergency Repair

GAS companies are preparing themselves for war emergencies to their large gas lines. Among the utility concerns which have taken the extra precaution of equipping repair trailers for use on air raid damage to large gas lines are the Michigan Consolidated Gas Co. and the Peoples Gas Light & Coke Co., Chicago, Ill.

The Peoples Gas Light & Coke Co. put its three new emergency trucks into service at north, central and south district shops some weeks ago.

To provide a special unit which would provide for the quick restoration of service in any emergency that might arise from bombing, the Michigan Consolidated Gas Co. used two heavy duty dual wheeled trailers formerly used for hauling pipe. Equipped with air brakes, they will be hauled by a heavy duty truck.

Equipment used in Detroit includes: air spades; air caulking hammers; air grinder; diamond points; moil points; cone grinding wheel; pneumatic sump pump; split sleeves; barricade boards; tarpaulins; lanterns; small fittings, soap, friction tape, etc.; chain and manila rope; rubber boots; air compressor with concrete breaker; steel pipe 16 in. in diameter and 22 in. in diameter (two lengths each); special dresser couplings for making connection between the steel and cast iron pipe; fire extinguisher; fire hose; bomb shell torches; high-powered lights; screw plugs; rubber bags and stoppers; gas masks; and blower mask.

One of two heavy duty dual-wheeled trailers converted to emergency repair trailers by the Michigan Consolidated Gas Co.

Experiments With Low Tin Solders

FURTHER experiments with low tin content solder were conducted with samples submitted by Federated Metals Division of American Smelting Co. and the National Lead Co.

The samples first tried were of the following composition: No. 30-A—30% tin, 1.25% silver, 0.5% bismuth, 0.5% antimony. No. 372—30% tin, 1.8% antimony, 0.1% arsenic, balance lead.

The results with 30-A were better than No. 372, however, because of the cracking and leaks that occurred, neither solder was considered safe to use. The method used in soldering with either 30-A or 372 was the usual method except that a hotter iron was used.

The next 30% solder tried was designated as No. 373. The antimony content had been increased by 0.3%. Thus the formula for No. 373 was: 30% tin, 2.1% antimony, 0.1% arsenic, balance lead. At a later date the National Lead Co. changed this number designation to No. 302.

Twelve meters were assembled using No. 373 for the soldering on of the fronts, backs, the triangles and back plates. The results were better than with No. 372.

The next 30% sample tried was designated as 30-H. This was an improvement on 30-A solder, the formula being 30% tin, 1.25% silver, 2.0% antimony, balance lead.

Both 30-H and 373 solder samples worked much better than any previous 30% solder. Because of this, further investigations were conducted.

The 373 solder shows a more definite tendency to crack than 30-H.

30-H solder has been used for the fit-up operation on 1500 meters. The number of leaks for these meters is the same as was experienced with the use of 38/62 solder. No new soldering technique is required for the use of 30-H. A slightly hotter iron, however, must be used.

The soldering in of the diaphragms requires more time to satisfactorily join the diaphragm ring to the partition. However, in conclusion it can be stated that in view of the above experiences 30-H solder of the following composition—30% tin, 1.25% silver, 2.0% antimony and 66.75% lead—can be used for fabricating of new meters and the repair of meters that have been in service.

AT THE ANNUAL meeting of the Mid-West Gas Association held in Sioux City, April 13, 1942, a committee consisting of C. B. Dushane, Jr., chairman; W. S. Bryne, H. E. Peckham and Lester J. Eck was appointed to investigate the possibility of obtaining relief from the solder requirements incorporated in the War Production Board Tin Order M-43-a, as revised March 17, 1942. This committee reported to H. K. Wrench, as president of the Association, in June, 1942, and a complete report, which included a brief of tests run by the American Meter Co., and submitted to the Tin Division of the War Production Board, was forwarded to all members of the Mid-West Gas Association. This report was summarized in GAS, August, 1942, p. 16. Since then, additional tests have been conducted by the American Meter Co., and a supplemental report issued. Excerpts from the American Meter Co. report, "Supplementary Soldering Experiments With Low Tin Solders," are published herewith.

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War Games in California

Southern Counties Gas Co., Los Angeles, is using the "war games" method of training emergency crews by subjecting them to mock "bombing attacks" designed to simulate air-raid conditions.

The test raids were designed to test the adequacy of the company's emergency organization and to give the emergency personnel practice in performing its duties.

An innovation was introduced recently when skeleton emergency crews actually went out on assignments accompanied by umpires from the general office. In the past, estimates had been made as to the time necessary for each unit to perform its task, and the crew was then regarded as "unavailable" during that period.

"Incidents" of damage to gas services were evolved according to the best military information available to the probable extent of the bombing raids that Southern California may expect.

The war games were carried on in conjunction with civilian defense activities of the Los Angeles County sheriff's office.

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Wartime Advertising

Believing that the natural gas industry has a high duty in supplying necessary fuel to keep war industries going at full blast and in furnishing heating and cooking facilities to army, navy, marine and aviation camps and fields, the Consolidated Gas Utilities Corp., Oklahoma City, Okla., through a sustained advertising campaign, started last May, seeks to keep its customers in about 30 towns of Oklahoma and Kansas fully informed on all phases of war activity on the home front.

Lauren H. Clegg, who writes the advertising copy for the company, states that an average of from 30 to 45 column inches of advertising have been carried in each newspaper in Consolidated Gas Utilities territory since the special campaign began.

IT'S GOT TO Last WHILE He's GONE
FOLLOWING in his Dad's earlier footsteps, that boy of yours has answered Uncle Sam's call and has gone forth to restore order in a disturbed World. He needs weapons and supplies — everything that American ingenuity can devise and American energy can provide.
We'll have to forget about nice new gas ranges and other new appliances while he is finishing the job. So, until his return, we must take the best possible care of those we NOW HAVE.
Your plumber and our service men will co-operate with you to the fullest extent to help you preserve your gas range and other gas appliances and keep them operating efficiently.
We strongly advise that, as soon as possible, you call your plumber and have him carefully check your household and service gas lines leading from your meter to make certain that all joints and connections are tight and all pipe is in good condition. Have him make sure that all valves and burners are properly adjusted and that they are clean and free from all dust, rust and greasy accumulations.
By doing this, you will not only increase the life of your household gas system and your appliances, but you will increase their efficiency. Further, you will be helping Uncle Sam conserve valuable fuel which might otherwise be wasted needlessly.
(Buy War Bonds — Preserve Your Country and Your Health)
CONSOLIDATED GAS UTILITIES CORPORATION

How Consolidated Gas Utilities Corp. has been telling its customers about the war and what they and gas must do to help achieve victory.

The great job natural gas is doing in helping to "cook the goose of Hitler-Hirohito & Company" and in "cooking" whole battleship turrets in "ovens as big as a five-room house" is effectively tied in by the advertising copy with the proper and economical cooking of foods, the national nutrition program and conservation of fuel.

E. C. Joullian, president of Consolidated Gas Utilities Corp., believes that this advertising is getting results in terms of a greater degree of understanding of mutual problems faced by the government, the military forces, the home front and the gas companies as they relate to the war effort.

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Oil Equipment Pool

Redistribution of idle or surplus oil country tubular goods for authorized uses will be made as soon as some 10,000 oil and gas producers file inventory reports, Petroleum Coordinator for War Harold L. Ickes announced last month.

Inventory sheets (OPC Form MA-2) together with detailed instructions as to the type of information required were sent to all oil and gas producers.

The mandatory report calls for a tabulation of all oil country tubular goods in the operators' possession, wherever located in Continental United States or in Canada.

The Government's Campaign to Conserve Gas

A NATIONAL publicity campaign stressing conservation in the domestic use of natural and manufactured gas has been launched by the War Production Board. (*GAS*, Nov., 1942, p. 16.) To some extent the campaign will implement Natural Gas Limitation Order L-31 and Manufactured Gas Limitation Order L-174. The conservation program is designed to save critical fuels and transportation and to avert gas shortages.

Cooperating with the WPB gas conservation campaign, the American Gas Association on Nov. 16 released campaign material, including newspaper advertisements and pamphlets especially designed for use by local gas utilities. The A. G. A. campaign material is directed at household use of gas and incorporates WPB suggestions for gas conservation by the domestic consumer. One of the A. G. A. advertisements is shown on this page.

The basic campaign is a national campaign because gas (manufactured and natural) is used by about 85,000,000 people fairly evenly distributed across the country (approximately 55% of consumption is natural gas, the rest manufactured). The consumers for household purposes are the people WPB must reach, since it is necessary to increase rather than decrease the amount going to war industries (currently 25% of all natural gas and 15% of all manufactured gas).

A pamphlet, the U. S. Government Campaign on Fuel Conservation, Supplement A, approved by the WPB's Power Branch and Division of Information, outlines the government program. Excerpts from the supplement follow:

The Problem

Reasons why the domestic gas conservation program is essential are:

1. The fuel conservation campaign with its emphasis on fuel oil saving has done such a good job that many people have swung to increasing their gas consumption by using their kitchen stoves to heat the kitchen.

2. Our war effort requires larger and larger amounts of gas in many areas for the processing of metals and the manufacture of rubber and chemicals which are vital for the war.

3. The supply of gas cannot be increased because we cannot get the metal to enlarge natural gas pipe lines or increase the capacity of manufactured gas plants.

4. The consumption of gas actually should be decreased because manufactured gas is made from oil and coal which must be transported and our transportation shortage is very serious.

5. Because of the foregoing it is possible that shortages might occur in many parts of the country, and these shortages could result in leaving whole industries or areas without any gas at all, which would mean stoppage in war industries, freezing of household pipes, etc.

Special Aspects of the Problem: The problem of conserving household gas differs from the problem of conserving fuel oil in that rationing is practically impossible because the delivery of gas through free-flowing pipes does not permit limitation of the amount delivered. Hence it is necessary to depend for any equable and practical plan of conservation on voluntary savings.

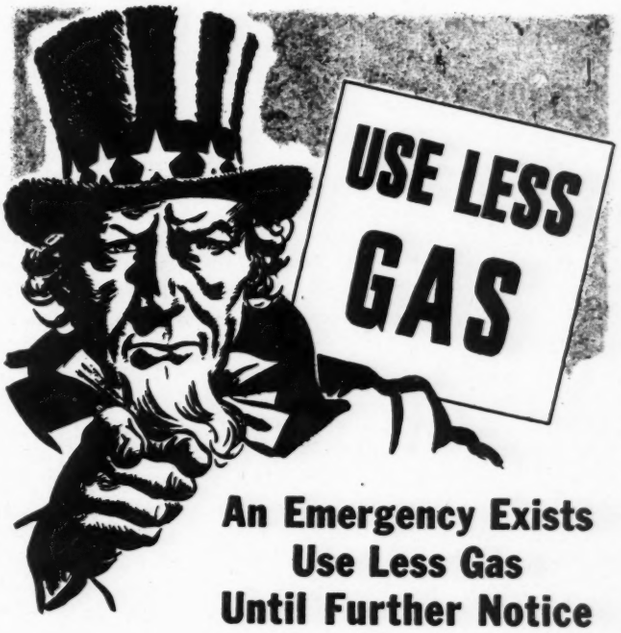
Possible Shortage Areas: Some of the principal areas in which natural gas shortages may occur if the winter is severe are in Ohio, western Pennsylvania and western New York, including such cities as Cleveland, Pittsburgh, Buffalo, Syracuse, Cincinnati, Dayton and Columbus; Southern California, including Los Angeles and San Diego; the area extending through central Missouri, central Illinois and central Indiana to northern Michigan, including the important war production center in and around Detroit; the eastern half of Kansas and the Missouri Valley from Kansas City to Minneapolis, including Kansas City and St. Louis and its environs, and various other localities served by natural gas pipe line companies.

Areas in which shortages of manufactured gas may occur include the Atlantic Coast states, the central and north-central sections, and the Pacific Northwest. Among cities in this group are Portland, Ore.; Portland, Maine; Seattle, Boston, Brooklyn, Rochester, New York, Baltimore and Milwaukee.

Conservation Methods

It is possible to give people the following specific suggestions which will enable them to save substantially on their consumption of gas:

1. Home heating economies are possible through insulating, overhauling of equipment, etc. Detailed instructions along these lines are adequately presented in the basic fuel oil conservation campaign and apply equally to gas. Other suggested economies in home heating: Refrain from using the range oven for space heating; make the house air-tight through insulation, storm sash,



An Emergency Exists
Use Less Gas
Until Further Notice

We are faced with the threat of a gas fuel shortage. It is imperative that every home in this community use *much* less gas for cooking, heating, refrigeration and water heating until further notice. You must reduce your use of gas so that vital war plants may be served and so that your gas service will not be curtailed by official order

Do not use your gas range oven to heat your kitchen. Use less hot water. Do less baking. Plan meals that use a minimum amount of gas. Don't keep the temperature of your gas refrigerator too cold. If you heat your home with gas, turn your thermostat down to 65° and wear warmer clothes. Cut down *your* use of gas for every purpose until further notice. This is a war time "must" Demonstrate your patriotism by cutting down your use of gas during this emergency

GAS IS VITAL FOR VICTORY USE IT WISELY

(GAS COMPANY NAME)

PUBLISHED IN SUPPORT OF THE GOVERNMENT'S PROGRAM TO CONSERVE VITAL FUELS FOR WAR PURPOSES

An example of the newspaper advertising prepared by the American Gas Association in conjunction with the WPB's national publicity campaign to conserve gas.

How to heat your home with LESS fuel this winter!
Just save heat – and then your fuel will save itself!
Here are 12 easily-remembered ways for saving up to 40% of this winter's fuel:
Why fuel saving is so important:
GAS IS WAR MATERIAL
Use it wisely!
PORTLAND GAS & COKE COMPANY

Portland Gas & Coke Co. heat conservation advertisement emphasizing practical and specific advice to the home owner and housewife which was carried twice in Portland's two dailies and once in each of the leading dailies in the various districts served by the company.

weather stripping and caulking; set thermostat at 65° during day, lower at night; shut off parts of house not in use.

2. Gas cooking economies can be effected by using a low blue flame, cutting down amounts of water in which to cook vegetables, cooking one-dish meals using the minimum size cooking vessels, keeping burners clean and filling the oven to capacity.

3. Gas water heating economies can be effected by repairing leaky faucets, insulating pipes and tanks, not leaving the water running while washing, not filling tubs for bath, and keeping thermostats set at a minimum.

4. Gas refrigeration economies can be effected by not leaving the refrigerator door open, allowing hot things to cool before putting them in refrigerator, not crowding the refrigerator (leave out foods that don't require refrigeration), using small containers, and resetting temperature control to minimum after quick freezing.

Campaign Objectives

WPB recommends aiming at the objective of convincing people that it is as important to conserve gas as it is to conserve oil and to provide them with as many specific suggestions for doing this as possible within space and time limitations of the media used.

Also recommended is a separate objective and treatment for local "crisis" shortage areas which may occur, wherein we believe it necessary to add to the above objective the aim of convincing people that a crisis exists in their particular area.

Copy Platform

For a national campaign WPB recommends that the following points be emphasized:

1. Gas is important to war production because it is used in processing metals and making synthetic rubber and chemicals.

2. The making of artificial gas uses up oil and coal which taxes the already overburdened transportation facilities of the country.

3. Because of the steel shortage, it is impossible to increase present gas-producing facilities.

4. So to help the war effort and save money as well, it is important to conserve on gas consumption.

5. You can save on gas consumption by doing the following things (as many specific suggestions to be given as space will permit).

For the local crisis campaigns WPB recommends the following:

1. A serious shortage of gas exists in this area and may result in your gas being turned off or in stoppage of some vital war industry unless you and your neighbors drastically curtail consumption.

2. Therefore the following specific means for cutting gas consumption should be used (as many specifics to be listed as permitted by space and time).

Recommended Media

Select from the available media those which will permit getting material into the field with maximum speed because the problem might become quite serious with any cold spell and the season for cold spells is now.

1. *Radio:* The basic idea of fuel conservation, with a specific twist in the direction of gas conservation, rates another priority standing in radio commercial allocations for at least a week at the earliest possible date. The basic argument should be worked into as many scripts as possible.

The particular nature of the suggestions on cooking economies and refrigeration economies should be very well suited to inclusion in various home economies and household hints programs, both national and local.

WPB recommends also that the basic idea that gas conservation is as important as oil conservation should be worked into the radio news dispatches at the earliest possible date.

2. *Motion Pictures:* WPB recommends that a very short picture be prepared by the Motion Picture Bureau following the basic copy platform by giving detailed illustrations of the type of specific savings that are possible. It is desirable to give the basic news on the screen and treatment in news reels at the earliest possible date.

3. *Newspapers:* At the time of the primary press conference (week of Nov. 19) a news release on the basic fact of the need to conserve gas was issued. Several feature articles on specific types of saving methods are planned.

4. *Magazines:* The subject needs rush treatment too much to wait for magazine material with the possible exception of a specific feature in some one of the domestic science or consumer advice publications, plus perhaps one of the weekly magazines.

5. *Graphics:* It is recommended that the graphics section develop a poster to carry out the essentials of the recommended copy theme if a satisfactory plan for adequate but rapid distribution can be worked out.

6. *Photographs:* It is recommended that the picture section get out photos graphs). Actual pictures of the use of gas appliances in the home (a point not covered in the fuel oil photographs). Actual pictures of the use of gas in war plants are also a possibility. A combination group of these might be developed to make up a page or fraction of a page in rotogravure sections.

7. *Trade Associations:* The American Gas Association is already cooperating, in fact has a campaign of its own already under way. The associa-

Facts about San Diego's Natural Gas Supply
A number of our Natural Gas users have recently expressed concern as to the prospects of a local fuel shortage. Their interest was aroused because of publicity given anticipated shortages in other parts of the country and they ask if similar conditions exist here
The Facts are These:
1
2
3
4
SAN DIEGO GAS & ELECTRIC COMPANY
Special Notice
WISE IT WISELY!

Sample of advertising used in San Diego to tell the citizens of that booming city the facts about the gas supply.

tion campaign should be given enthusiastic approval and all possible help.

Because the need for the campaign has been discovered so late, it is important for us to be as flexible as possible in our time schedule, accepting the various items as soon as they become available. It would be best, if possible, to have the allocation radio material go out onto the air before the more detailed material, but this is not essential.

Crisis Kits

A special kit of material should be prepared for emergency use in any areas where shortages occur. It is desirable to place this emergency kit with gas companies in advance of actual shortages rather than with local office of OWI so that the minute a shortage seems imminent, the local gas company can contact the newspapers and radio stations and place the kit material in their hands for immediate use. The material for this kit is restricted to the type of thing which can be put into effect very speedily:

1. Two or more news releases should be prepared announcing the shortage situation, giving the reasons for it and stressing the possible consequences if immediate voluntary conservation measures are not instituted in all homes. (Suggested releases could tell about responses to the campaign activities of local organizations on their activities.)

2. Prepared radio commercial copy covering the same ground as the above news releases.

3. Suggested plan for approaching local organizations, teachers, etc., to enlist their support in getting conservation started.

Local Cooperation

Gas companies, particularly those in critical areas, have long been aware that winter might bring its gas shortages, and many of them have over a period of months directed their advertising and public relations activities toward educating their consumers on what to do should a cold spell force the utility to curtail deliveries to the domestic load in order to keep the all-essential war production plants fire-up.

The American Gas Association, since Pearl Harbor, has recognized the need for gas conservation, and throughout the year has offered appropriate promotional material to its member companies. *GAS* of September (p. 23) commented on the Association's ABC Block series of catchy conservation advertisements.

Pittsburgh, Pa.: The three natural gas utilities in the greater Pittsburgh area have been particularly alert, and by combining their efforts through Ketchum-MacLeod & Grove, Inc., have developed a series of advertisements using the theme, "Gas Is Ammunition! Use It Wisely!" As far back as March of this year, *GAS* (p. 14) reported on this conservation series, which then warned the housewife of the demands made by war production on the natural gas supply, and advised her specifically on what she could do to save gas and help to beat the Axis.

This long-range Pittsburgh gas conservation campaign was among the first (if not the first) spontaneous and educational effort by a gas utility to help the consumer to help the war effort. The campaign won commendation from both the industry and government.

Jackson, Miss.: Early in 1942 (*GAS*, May, 1942, p. 27) the Mississippi Power & Light Co. launched a promotional campaign "to teach its customers how to use less gas." Depletion of nearby reserves forced the company to take steps to teach consumers how to conserve in using gas for house heating. Many of the points stressed in the government's current campaign were used by the Jackson utility.

Madison, Wis.: Paul De Leon, new business manager of Wisconsin Power & Light Co., reports that his company is following Limitation Order L-174 and amendments and has made a study of consumption and customer usages. Since his company has no house heating, his problem is reduced, the present load being approximately half residential and half industrial and commercial. A brief of L-174 has been sent out and plans are being made for an educational advertising campaign to keep customers notified as to the local problems so that they will not become confused with the national releases.

San Francisco, Calif.: Vice President R. E. Fisher of Pacific Gas & Electric Co. states that P. G. & E. is in full accord with the underlying idea of the government campaign, and that the company publicity campaign will augment and more fully convey to customers the local situation as it affects availability of gas for use by them. The national publicity has been closely watched, particularly since it has been released on a nation-wide basis regardless of conditions in various areas. It so happens that in most P. G. & E. territory there is an ample supply of natural gas, and the necessity of curtailment to conserve fuel is not as pressing as it is elsewhere. In order that customers may not be misguided by some of the information, the company will run advertisements from time to time to stress the points of care and economy in the use of gas to avoid extravagance, and to inform customers that a normal use of natural gas for essential needs is permissible and in keeping with the war effort.

Los Angeles, Calif.: A booklet giving instructions in what to do in case an emergency makes it necessary to ask residential customers to curtail their use of gas temporarily or to shut off the gas supply in any area, was issued by the Southern California Gas Co. in November in furtherance of the present advertising and publicity program to acquaint the public with the wartime conditions under which the company is operating. It will be sent out to customers with the current gas bills.

This booklet, according to the foreword, has been prepared for use only in case a warning is given by the gas company by radio or through the newspapers that a wartime fuel-gas emergency exists. Two types of emergencies are envisioned: (A) peak-load conditions that make it necessary to cut down on the use of gas for heating in homes and stores; or (B) an actual interruption to the supply that would require an immediate shut-off.

In giving the reasons why it is important that people be prepared for either one of these emergencies, President Franklin S. Wade says for the company: "Always in the past, household users of natural gas have been given first call by your gas company over industrial users. This is Rule No. 1 in our business, which we have never violated. If we do so, it will be for only one reason—WAR."

Government Booklets on Gas Conservation

Home Insulation, an Effective Conservation and National Defense Measure—By Paul M. Tyler, chief engineer, Nonmetal Economics Division, U. S. Bureau of Mines. Issued by the Department of the Interior in April, 1941, the pamphlet explains how insulation can effect savings in heat losses, how insulation works, gives a resume of service tests, gives details on insulation installation, and covers the various products used in insulation.

How to Heat Your Home With Less Fuel This Winter—This pamphlet, prepared jointly by the Office of the Petroleum Coordinator, the War Production Board, the Office of Price Administration, Bituminous Coal Consumers Council, Office of Solid Fuels Coordinator, and the Office of War Information, explains how fuel may be conserved in using oil and gas burners and coal burners; covers the subjects of insulation, storm windows and doors, weather stripping, and air leaks. Additional U. S. Government bulletins on this topic are listed in the pamphlet.

A Library Service for the Gas Industry

By JULIAN F. SMITH

Technical Librarian, Institute of Gas Technology, Chicago

TO collect and disseminate scientific information is one of the four major objectives for which the Institute of Gas Technology was founded. To perform this dual function a comprehensive library of gas technology is essential. Such a library is now being accumulated from all available sources. The intention is to make it both the most complete of its kind and the most active of all libraries in service to the gas industry.

It will take a long time to bring together in one collection all the published literature of gas technology. Many foreign publications are difficult or impossible to obtain under present conditions. Photocopying will solve the problem in some cases but not in all.

Library service to the Gas Institute and to its member companies will therefore not depend on the growth of the Institute's own library. Other libraries are being utilized as needed, so that service to the Gas Institute and the industry can be carried on concurrently with library development.

Service Functions

1. *Aids in Utilizing the Literature:* The library's first job in serving staff and students is to provide all reference books needed for instruction and research. The lending and circulation system must be such as to encourage and facilitate maximum utilization of the information thus made available.

A prime essential in helping readers derive utmost benefit from books is to keep them well informed as to the material in the library. The Institute staff and students therefore receive the library's accession lists, which include appropriate comments whenever new books, pamphlets or periodicals do not reveal by their titles their relation to special interests in gas technology. Copies of the accession lists are also sent to libraries or laboratories of member companies.

The second essential in serving staff and students is to help them familiarize themselves with prior research on their special topics. Every new Gas Institute project must have its own literature survey, because research campaigns can be intelligently planned only through knowing what has been done before.

Systematic repetition of another investigator's work may be desirable and profitable when confirming evidence is needed, or for some other reason. But repeating prior research, believing it to be new and original work, is sheer waste. Undesirable at any time, waste becomes intolerable when it involves loss of time and effort by experts in projects relating to prosecution of the war. The normal need for efficient utilization of technical literature is intensified by war to a stark necessity.

The library's function is to guide and assist chemists in literature searches for research projects, not to make the searches for them. Each chemist must know the background of his problem through his own study of prior publications, but he can make the search most efficiently if aided by the library.

2. *Current Literature Bulletin:* Another major function of the library is to keep the staff and member companies informed of all current developments in gas technology. This can be done only by reviewing current literature and patents. Every pertinent item must be abstracted briefly but sufficiently to guide readers in deciding whether or not to consult the original. Because such abstracts would be helpful to gas technologists throughout the industry, a monthly bulletin is planned which will be sent to libraries or laboratories of member companies as well as to the Gas Institute staff.

The intention is to make the bulletin self-indexing by classifying the subject matter in such detail that no sub-class will ordinarily have any large number of entries in any one issue. Abstracts will be spaced to permit clipping and mounting on index cards. This enables readers to accumulate a card index on any special topic, combining references clipped from the bulletin with old or new references from other sources. Readers who wish to use the bulletin in this way will receive two copies to take care of items occurring opposite each other on the same sheet.

To facilitate rapid scanning for selection of interesting entries, each item is headed by a short title in capital letters. This heading can be used as an index entry, but a blank line is provided above the title for use when some other heading is desired.

The usefulness of current literature bulletins for technologists in special fields is attested by the fact that many such bulletins are successfully serving privately owned and institutional research laboratories. A few are serving whole industries (paper and plastics are notable examples). Some of these bulletins are outstanding in quality and in thoroughness of literature coverage. Even those which are inferior in form and in quality of abstracting receive the continued support of their respective organizations because they meet a definite need.

3. *Bibliographies:* As occasion arises the library will issue reading lists or annotated bibliographies on selected topics such as desulfurization, gas hydrates, chemicals derived from specified hydrocarbons or any topic for which a survey is needed. Such service is being successfully rendered in other industries and has been practiced effectively by the American Gas Association, in the specific field of appliances and their uses.

It is anticipated that some bibliographies, on topics of general interest to the industry, will be published and distributed to members, while others, specifically interesting to one laboratory or group of laboratories, will be issued as sponsored literature search projects and received only by the sponsor. Either type may range from brief compilations on simple topics to thorough critical studies of complicated problems in gas technology.

4. *Translations:* The Gas Institute Library is prepared to translate technical articles into English from most of the principal European languages and to find chemists or engineers who can translate other languages. This service is limited mainly to translation projects sponsored by member companies to whom no other competent translator is readily available.

5. *Reviews:* A project which is to be completed as soon as circumstances permit is a comprehensive review of gas technology from its early beginnings to the present time. This review will be issued as a publication of the Institute of Gas Technology and will be kept up to date by annual or biennial reviews of new developments.

Library Development

1. *Books and Periodicals:* The Institute of Gas Technology began life without a library, but has already accumulated several hundred volumes

by purchases and gifts. The physical growth of the library is just beginning. About 30 periodicals are being received currently. Most of them are American, but a few come from England. Efforts are being made to obtain about as many more from Continental Europe through the Committee on Importations (a joint committee of several library associations in the United States) and the Committee on Cultural Relations With Foreign Countries in the USSR. The success of these efforts depends largely on war conditions.

As the Gas Institute staff grows, the library is keeping pace. Current periodicals are being added to the subscription list, and bound sets of periodicals are being purchased, according to the needs of the staff.

Already the library has been fortunate in receiving two gift collections. The first was donated by F. W. Stone of Ashtabula, Ohio. It includes about 300 volumes and brings to the library some early American gas periodicals which are now difficult to find.

The other gift collections, received from B. L. Sites of the Miehle Printing Press & Mfg. Co., Chicago, is a long file of periodicals published by the American Chemical Society. Some go back to 1911.

Libraries of gas and utility companies have also been generous in sending their duplicates to the Gas Institute Library.

2. *Patents:* Recognizing the importance of information disclosed in U. S. and foreign patents, the Gas Institute Library receives and reviews the "Official Gazette" of the U. S. Patent Office and the "Canadian Patent Office Record." The British Patent Office suspended publication of its "Illustrated Abridgements" late in 1939, but these will be reviewed when they become available. Until then it is necessary to rely on "Chemical Abstracts" and like sources for information on British patents. The same is true of other foreign patents, official abridgments of which are not available at present.

Printed copies of new U. S. patents are received weekly by subscription to appropriate classes. Copies of patents in other classes are ordered week by week after reviewing the "Official Gazette." Canadian patents are not printed; manuscript copies are ordered when needed. Printed copies of British and other foreign patents would normally be ordered directly from the respective patent offices, or as photostat copies from the U. S. Patent Office when wanted quickly. At present the principal source is the U. S. Patent Office and recent foreign patents may be unobtainable because arrivals are irregular and uncertain.

Systematic filing and indexing of patents is essential to their effective utilization. This problem is receiving careful attention in the Gas Institute Library in close connection with the related problem of indexing other library material. The intention is to develop indexes which will permit searchers to locate quickly all the available references on a given subject. Enormous savings in time and effort can be effected in this way, both for the Gas Institute staff and for authorized representatives of member companies.

Library Policy

As the medium through which scientific and technical information is to be collected and disseminated the Gas Institute Library is committed to a policy of serving the gas industry. Collected information can be dead and buried, or if properly disseminated it can be a vital force in production, development and research. The purpose of this library is to make technical information live and work for the Gas Institute staff and for member companies. Suggestions will be welcomed.

In keeping with the policy of the Gas Institute as a whole, the library will not attempt to duplicate any service or function already being performed by the American Gas Association for its members. Such services will be coordinated to avoid overlapping.

Ideas underlying the library's service plans and operating methods came from many sources. Two of these deserve special mention. One, the library of the Institute of Paper Chemistry in Appleton, Wis., has long been a leader in adapting technical literature services to a specific industry. The other, owned by Central College in Fayette, Mo., is the Hooker Scientific Library, a pioneer enterprise in putting technical literature to work for the entire chemical industry.

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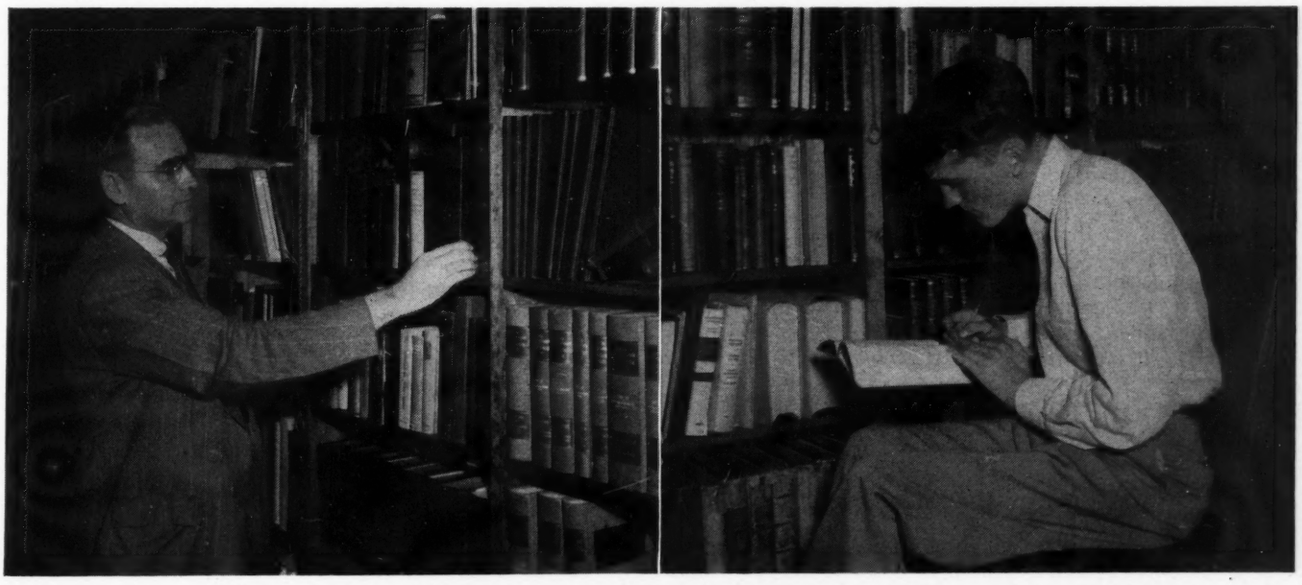
Gas Line to Be Abandoned

As soon as permission is granted by federal authorities the Cabot Gas Corp., subsidiary of Godfrey L. Cabot, will abandon operation of 71 mi. of 14-in. natural gas transmission line in order that the pipe may be removed from the ground.



These recent photographs of the growing library of the Institute of Gas Technology show (left) Technical Librarian Julian F. Smith selecting a volume and (right) Student Robert Newhall working at one of the reference shelves.

Chemicals from Fuel Gases

EXCERPTS from an address, "Wartime Chemicals From Natural Gas," presented by Dr. Gustav Egloff, director of research, Universal Oil Products Co., Chicago, Ill., before the American Institute of Chemists Club, New York, Oct. 23, 1942.

FOR many years natural gas has been used mainly for heating and generation of steam and electrical power. In the last few years, however, the tempo of research and development has increased enormously. A much higher field of utilization for natural gas than as fuel is seen in the conversion of the hydrocarbons into superior aviation gasolines, lubricants, synthetic rubber, explosives, acetylene, anesthetics, plant life promoters, plastics, solvents, and many other chemical derivatives.

Hydrocarbons present in natural gas are methane, ethane, propane, butane, pentanes, hexanes, and heptanes, etc. The first four of those are gases while from pentane on they are liquids useful as gasoline. Some other hydrocarbons which can be derived from natural gas are isobutane, isopentane, olefinic hydrocarbons, and isooctane.

Out of the total 886,000 tons of synthetic rubber planned for the United States, 705,000 tons of it will come from butadiene and styrene. The normal butane that will be used for butadiene will represent about 80,000 tons a year derived largely from natural gas. More than 100,000 barrels a day of normal butane are available from natural gas. If this were used just for butadiene making, it would satisfy the entire butadiene requirements in our present synthetic rubber program.

Another type of synthetic rubber is called thiokol, the raw materials of which also can be made from natural gas. The synthetic rubber program calls for 60,000 tons of thiokol yearly. Thiokol will be used in retreading tires.

Besides butadiene, styrene, and ethylene, a hydrocarbon of great importance is acetylene, used in the production of the synthetic rubber, neoprene; it is also the base material for nylon, a replacement product for silk.

Natural gas or products therefrom under high temperature conditions yield acetylene readily. It is believed that acetylene can be produced at a lower cost from processing natural gas than by the electro-chemical method of producing calcium carbide.

Natural gas is an important source of high explosives. Natural gas in some parts of the country is being cracked into hydrogen which is combined with the nitrogen from the air, producing synthetic ammonia. The ammonia is readily oxidized with air into nitric acid. Combination of the ammonia and nitric acid produces ammonium nitrate.

Nitroparaffins from natural gas may well develop into one of the newer and valuable sources of high explosives. Methane gas when nitrated produces tetranitro-methane. This compound is the most destructive explosive known to man. Unfortunately, no commercial process has been worked out to make this product available for use by our armed forces.

Anasthetics are vital in a world at war. One of the primary needs of the medical profession has been anesethics which do not have post-operative dangers due to pneumonia and nausea. Ethylene has been shown to have properties superior to those of ether and nitrous oxide. Cyclopropane, although known since the year 1882, was still a laboratory curiosity until the end of 1930 when it was first applied in human anesthesia. It has been rather widely adopted since as being one of the safest anesthetics.

Olefins have been investigated as fruit ripening agents and for use in inducing an accelerated plant growth. The first gas to be utilized for this purpose was ethylene.

Natural gas hydrocarbons can be used as basic materials for the synthesis of plastics. The coming importance of plastics cannot be over-emphasized at this time, since airplane manufacturing is calling for more of the plastics for use in plywood planes. Steel now used in many places is being replaced by plastics. In the war industries where the fabrication of planes takes place, the methylmethacrylate resins are used as the transparent non-shatterable parts where great visibility is necessary, and this will undoubtedly be used by the automobile industry after the war is over. A high degree of visibility from all over the motor car will be worked into the new design, requiring less supporting frame work, and a clear vision rooftop with sliding window will undoubtedly take the place of present designs. In fact, the motor car of the future may well be substantially all plastics.

One big field of research and development that merits discussion is carbon monoxide and hydrogen or the water gas reaction to form hydrocarbons. The hydrocarbons produced are methane, ethane, ethylene, propane, propylene, butanes, butylenes, gasoline, gas oil, and Diesel oil to solid paraffin wax.

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EXCERPTS from an article published in "Chemical & Metallurgical Engineering," Sept., 1942, describing the Tallant, Okla., plant of Cities Service Oil Co.

CHEMICAL & Metallurgical Engineering devotes a four-page feature spread in its September issue to a flow sheet of Cities Service Oil Co.'s process for the conversion of certain chemicals from natural gas hydrocarbons. The flow sheet traces the essential steps in the manufacture of chemicals at the Cities Service chemical refinery at Tallant, Okla.

John Walker of Bartlesville, general superintendent of the chemicals division, wrote the introduction, which is reprinted below:

"The growing importance of the petroleum industry in the chemicals field is again illustrated in the large-scale production of formaldehyde, methanol and related chemicals by the direct oxidation of natural gas hydrocarbons at the Tallant, Okla., chemical plant of the Cities Service Oil Co.

"Conversion of methane and other natural gas hydrocarbons directly to formaldehyde by air oxidation has received much attention in the past, but the first successful commercial plant utilizing this method was built at Tallant early in 1928. Since that time, the production capacity of this plant has been consistently expanded. Output at

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THE IMPORTANCE of the chemicals which can be obtained from both natural and manufactured gases has become particularly evident during this war period. The progress that has been made is recorded frequently in the contemporary technical press, and considerable plant capacity is now being operated by related industries (chemical, oil, etc.) on such processes. The gas industry with a few notable exceptions such as the Portland (Ore.) Gas Coke Co. has so far refrained from actively entering the chemical field, but with the current and probably long-sustained upsurge in producion of wartime chemicals and the apparent necessity for the country to remain self-sufficient in all its vital needs, many gas companies may soon find it desirable, if not highly advantageous, to embark upon some program of chemical productivity in addition and complementary to their normal activities.

Dr. Gustav Egloff, whose paper, "Wartime Chemicals From Natural Gas," is abstracted on this page, has served Universal Oil Products Co. as director of research since 1917, and in that capacity has developed many processes for refining and treating crude oils and gasoline. He is president of the American Institute of Chemists, a member of the Permanent Council for World Petroleum Congresses, and serves as member or adviser on five government war planning or coordinating committees.

present is very substantial. Cities Service today is the largest producer of formaldehyde by this process—a process developed by its own research organization.

"A substantially equal tonnage of methanol is produced simultaneously with the production of formaldehyde. A smaller tonnage of acetaldehyde, methyl acetone solvents, etc., are also produced. These products are produced in admixture—as a crude chemical—by the controlled partial oxidation of natural gas hydrocarbons. The crude chemical product must then be separated by fractionation into its major constituents — formaldehyde solution, methanol, acetaldehyde, and methyl acetone solvents. These fractions are further refined to commercial specifications. Methanol produced in this process has been converted largely to an anti-freeze, but substantial quantities have now been made available to other uses.

"This process for the manufacture of chemicals operates at moderate temperatures and pressures and therefore does not require the expensive forgings and other scarce materials essential to synthetic processes operating at pressures of several hundred atmospheres."

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EXCERPTS from a paper, "Chemical Utilization of Natural Gas and Natural Gasoline Hydrocarbons," presented by Dr. Hooper Linford, Ph. D., research chemist for Union Oil Co. of California, before the 17th annual fall meeting of the California Natural Gasoline Association in Los Angeles, Nov. 6, 1942. Dr. Linford, as research chemist with Union Oil Co. of California for the past 10 years, has devoted much of his time to the study of oxidation of petroleum fractions which are becoming increasingly important in the production of plastics in vital war industries. He is a graduate of Utah Agricultural College in 1926 and received his M. S. degree from Washington State College in 1928, followed by his Ph. D. from the University of Cincinnati.

NATURAL gas and natural gasoline are composed primarily of mixtures of the simpler or lower molecular weight paraffin hydrocarbons. Although the paraffins were originally thought to be inert chemically, they are actually chemically active and are readily converted into various widely different chemical derivatives. Moreover, the huge supplies and low values of both of these commodities make them particularly suitable as basic raw materials for the manufacture of organic chemicals.

In considering the chemical utilization of paraffin hydrocarbons, three general types of chemical processes appear to be applicable: namely, pyrolysis, halogenation and oxidation. Commercial applications of each of these processes have been developed to a limited degree, but in no case have their full possibilities been exploited. Large petroleum chemical industries can, and undoubtedly will, be built around these basic processes in the not too distant future.

Under controlled conditions, oxygen can be made to react with the paraffin hydrocarbons to produce a large number of oxygenated derivatives which are valuable commercial chemicals. This method of chemical utilization is of particular interest from a commercial standpoint because air can be used as the oxidation medium. Moreover, oxidation processes can often be carried out at lower temperatures and pressures than are required in many important industrial processes.

The products of oxidation include: alcohols, aldehydes, ketones, acids and esters as well as carbon monoxide and hydrogen.

FPC Rules on El Paso Rate Case

THE Federal Power Commission has ordered El Paso Natural Gas Co. and its wholly owned subsidiaries, Western Gas Co. and El Paso Gas Transportation Corp., to reduce wholesale natural gas rates by not less than $526,000 per year, it was announced Oct. 30 by John W. Scott, commissioner in charge of the investigation. The reduction ordered is based on 1941 sales to distributing companies, and it is expected that for the next 12 months the reduction will be in excess of $700,000 due to increased sales of natural gas.

The reduction ordered marks the culmination of the Commission's comprehensive investigation of the interstate wholesale rates and charges of El Paso Natural Gas Co. and its affiliates instituted upon complaint filed by Governor Sidney P. Osborn of Arizona on March 4, 1942.

Upon completion of the presentation of evidence by the staff of the FPC, representatives of the companies involved waived further hearing and consented to the Commission's order reducing rates.

The Commission also found monopolistic a provision in El Paso Natural Gas Co.'s contract with Central Arizona Light & Power Co. which prohibits El Paso Natural from selling or delivering gas in Maricopa County, Ariz., to anyone other than Central Arizona Light & Power Co. A similar finding was made as to a contract which prohibited M. A. Moody and his assignee, Natural Gas Service Co. of Arizona, from selling gas in competition with electricity sold by the Salt River Valley Water Users Association. The Commission objected to a provision in the contract between El Paso Natural and Arizona Edison Co. providing for an increase in wholesale gas rates if such contract were acquired by a municipality.

The order makes effective new uniform city gate rates for gas delivered and sold on and after Nov. 1, 1942, in each of the three states affected. In Arizona the present average rate for domestic and commercial gas is reduced from 30.92¢ to 22¢ per M c. f., and industrial from 23.35¢ to 18¢. In Texas the domestic and commercial rate is reduced from 27.23¢ to 19¢, and the industrial rate from 19.61¢ to 16½. In New Mexico, domestic and commercial gas is reduced from 35.28¢ to 21¢, and industrial from 25.69¢ to 18¢.

The Commission found a rate base for the entire El Paso Natural Gas Co. system of $21,374,069, representing original cost in the amount of $25,538,341, less accrued depreciation of $4,576,470, plus $412,198 for working capital. These figures reflect the elimination by the Commission of $1,800,460 from plant accounts, including a write-up of $925,000, excessive amounts paid for lands of $269,112, organization expenses of predecessor companies and unsupported charges to organization of $130,410, abandoned plant of $153,026, unsupported and improper charges for gas sales contracts of $203,718, and operating expenses erroneously charged to plant account of $119,194.

A rate of return of 6½% per year was used in arriving at the reduced interstate wholesale rates. The Commission found that the operating revenue from the sale subject to its jurisdiction in 1941 was $1,928,609, which amount exceeds by $526,002 the allowable operating revenue deductions and expenses of $1,402,607.

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Houston Natural Presents Attractive 24-Page Report

Attractively presented in two-tone form is the 24-page booklet containing the annual report of the Houston Natural Gas Corp., Houston, Texas, for the fiscal year ended July 21, 1942.

In addition to the financial statements and a message from President Frank C. Smith, the booklet contains descriptive material and pictures on the growth and development of the Texas Gulf Coast area served by the company. The Houston Natural Gas Co.'s part in the war program, dating from Aug. 15, 1940, when the corporation turned on gas for the United States Naval Air Training Station at Corpus Christi to its present-day function of supplying natural gas to many more vital war industries, is interestingly told within the pages of this annual report.

Unitized Repressuring Project in New Mexico

By W. K. DAVIS

El Paso Natural Gas Co., El Paso, Texas

THE Langlie Unitized Repressuring Project commenced operation April 1, 1941, and is composed of 13 wells. All of the wells, except two, in the project are on government acreage in Lea County, New Mexico.

The companies owning an interest in these properties that entered into the agreement forming the Langlie Unitized Repressuring Project were the Anderson-Pritchard Oil Co., Stanolind Oil & Gas Co., Illinois Oil Co., R. Olsen Oil Co., and the El Paso Natural Gas Co. The operator of the project is the Anderson-Pritchard Oil Co., which supervises the accounting, bookkeeping, field operations, and makes monthly and quarterly reports to the executive or planning committee which is composed of one member from each of the companies listed above.

There is a field engineering committee which meets each month. The members are Frank Gray, Anderson-Pritchard Oil Co.; F. V. Cooksey, Stanolind Oil & Gas Co., and W. K. Davis, El Paso Natural Gas Co. The object of this committee is to make individual well curves, unit curves, study the results obtained from the project, supervise various field surveys and make recommendations to the planning committee concerning future operation of the project.

Area Structure

The structure in the area is a nose extending south from the Langlie field, which dips to the south, west, and east. The producing horizon is composed, principally, of two sands which are medium fine grained and fairly well developed. These two sands are separated by approximately 15 ft. of dense dolomite and have an estimated average thickness over the area of 13 ft. and are usually found around 3450 ft. The thickness and character of the sands varies from one location to another, dependent upon the relative position of the wells on the structure.

From sample determination of wells located near the lower limits of the structure that did not find commercial oil production, it was found that the character of these oil-producing sands had changed to an impervious, non-productive shaley sand. The gradation of the producing sands to impervious, non-productive shaley sand to the southwest, east, and the undrilled area to the north should eliminate any movement of injected gas away from the project and create a favorable gas reserve.

The Langlie No. 2 and the Jal No. 1 were chosen as input wells for the following reasons: position on the structure, centrally located with reference to other wells in the project, the initial potentials indicated better than average sand development, porosity and permeability and existing well conditions. Only the Langlie No. 2 was used as an input well until November, 1941, at which time the Jal No. 1 was converted from an oil well to an input well.

In the early stages of gas injections into these wells, the gas was returned to the formation at the rate of approximately 200 M c. f. per day. The rate of injection was gradually increased in the Langlie No. 2 to about 1185 M c. f. per day and in the Jal No. 1 to about 1070 M c. f. per day. There is a formation anchor packer in the Jal No. 1 set at 3458 ft. separating the two sands. However, the lower sand is rather poorly developed in this well, and the present rate of injection to this sand is only 141 M c. f. per day while the present rate of injection in upper sands is 929 M c. f. per day. In the near future the lower sand will be shot in an attempt to make this sand as responsive to gas injection as the upper sand.

Table No. 1 shows a comparison of bottom hole pressures, injection rates, and volumes on the input wells.

The average bottom hole pressure of all the wells in the project in April, 1941, was 555.74 lbs. absolute. In August, 1941, the average bottom hole pressure increased to 588.51 lbs. absolute, and since that time it has increased to 671.13 lbs. absolute, which is the present average bottom hole pressure of all the wells in the project. The gas-oil ratios on some of the offset wells have shown a definite increase as a result of gas injection; however, there are no indications that the high ratios can be attributed to gas channeling from the input wells. Instead, it is believed that the high ratios were caused by the movement of gas which had dropped out of solution as the bottom hole pressure declined and was more or less dormant in the formation surrounding the bore hole until the injected gas caused an abnormal movement of the oil and gas contained in the formation.

Favorable Results

The rate of decline in production indicates favorable results from gas injection and a comparison of the daily potential decline curve in the latter months of the repressuring operations with the estimated potential decline curve without repressuring indicates a substantial increase in daily potentials due to repressuring. The average daily production from the Langlie A No. 1 well in April, 1941, was 15 bbls. of oil (cut 2% H_2O) per day pumping. The average daily production from this well in March, 1942, was 40 bbls. per day flowing with 225 lbs. back pressure on the tubing. The bottom hole pressure on this well in April, 1941, was 263 lbs. per sq. in. and in March, 1942, it was 650 lbs. per sq. in.

The volume of space filled by the present volume of gas injected daily is approximately 70% of the total space voided by the withdrawals of gas, oil, and water from the project.

The gas used for injection is supplied by the El Paso Natural Gas Co. from its low pressure gasoline plant in the Mattix area, Lea County, New Mexico. At the present the company has one 300-hp. single stage compressor installed with a capacity of 3000 Mc.f. per 24 hours at 500 lb. intake pressure and 2000 lb. discharge pressure.

TABLE NO. 1. A COMPARISON OF BOTTOM HOLE PRESSURES AND INJECTION RATES AND VOLUMES ON THE IN PUT WELLS.

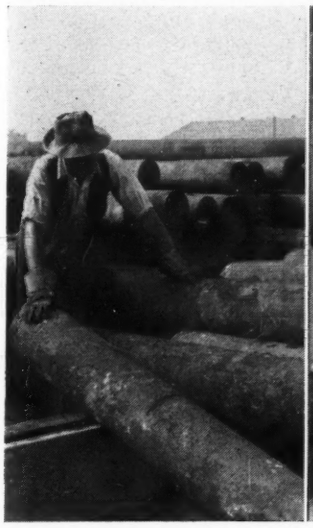
Wells or Sands	*Bottom Hole Pressure Previous to Gas Injection*	*Present Bottom Hole*	*April, 1941 Ave. Daily Inject. Vol. Inject. Pressure*		*March, 1942 Ave. Daily Inject. Vol. Inject. Pressure*		*Total Amount of Gas M c. f. Injected to 4-1-42*
Langlie No. 2	505	915	200 M c. f.	625	1,185 M c. f.	990	310,818
Jal No. 1							
1. Upper sand	375	680	200 M c. f.	530	929 M c. f.	810	18,470
2. Lower sand	628	690	161 M c. f.	1,140	141 M c. f.	1,230	100,047

Modern Methods In Pipe Salvaging

ON this page is presented a story in pictures of one of the most up-to-the-minute pipe yards in the United States, recently completed at the 48th Street warehouse of the Southern California Gas Co. in Los Angeles. Incorporated in its design is every conceivable device to promote efficiency and ease of handling. It is the product of the imagination and ingenuity of half a dozen company engineers, including J. B. Reddick, L. F. Dishman, J. T. Cortelyou and B. M. Laulhere of the engineering department, and W. C. Hall, 48th Street yard foreman.

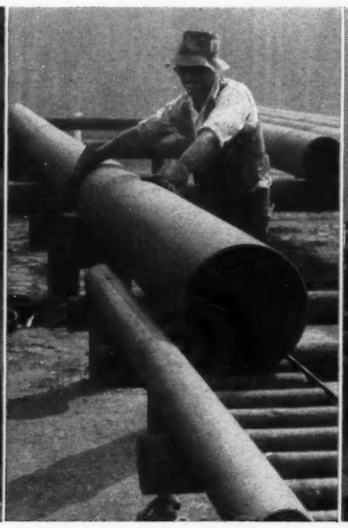
Working with old equipment that was used in the former pipe cleaning and wrapping plant located here, these men completely revamped the set-up. They constructed "elevated lay-downs" out of second-hand pipe. These raised stands permit the pipe to be rolled from one operation to the next with a minimum of lifting. Where it is necessary to move pipe lengths laterally, rollers are provided. Hydraulic jacks, too, are installed where lowering and raising of pipe is required.

The plant is of particular value at this time because it is especially equipped to salvage and recondition used pipe. Material that would be junked in ordinary times is saved for good use.



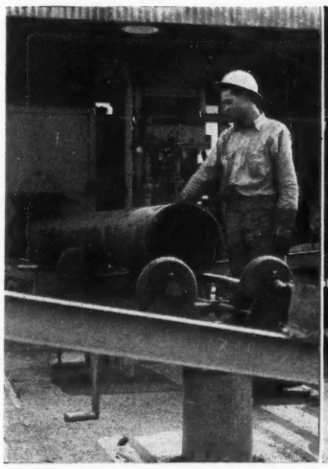
(1) SALVAGE—Pitted, encrusted with rust and dirt, salvaged pipe comes into the yard as it was taken from the ground. Helper J. Van Oostang checks over a pile.

(2) INSPECTION—Removal of dirt and rust reveals pits which are checked for depth by a special gauge. Those that reduce the pipe wall beyond a safe limit are welded.



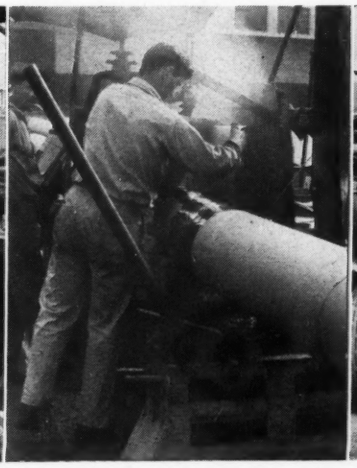
(3) HANDLING—"Elevated lay-downs," waist high, constructed of second-hand pipe, make it possible for one man to handle lengths of pipe with ease. Rollers are provided to move pipe lengths laterally.

(4) WELDING—Helper Van Oostang keeps 'em rolling for Welder C. J. Brandstetter, who repairs the bad spots and welds short lengths together. Minimum length for efficient handling is 18 ft. Pipe from 6 to 20 in. handled.



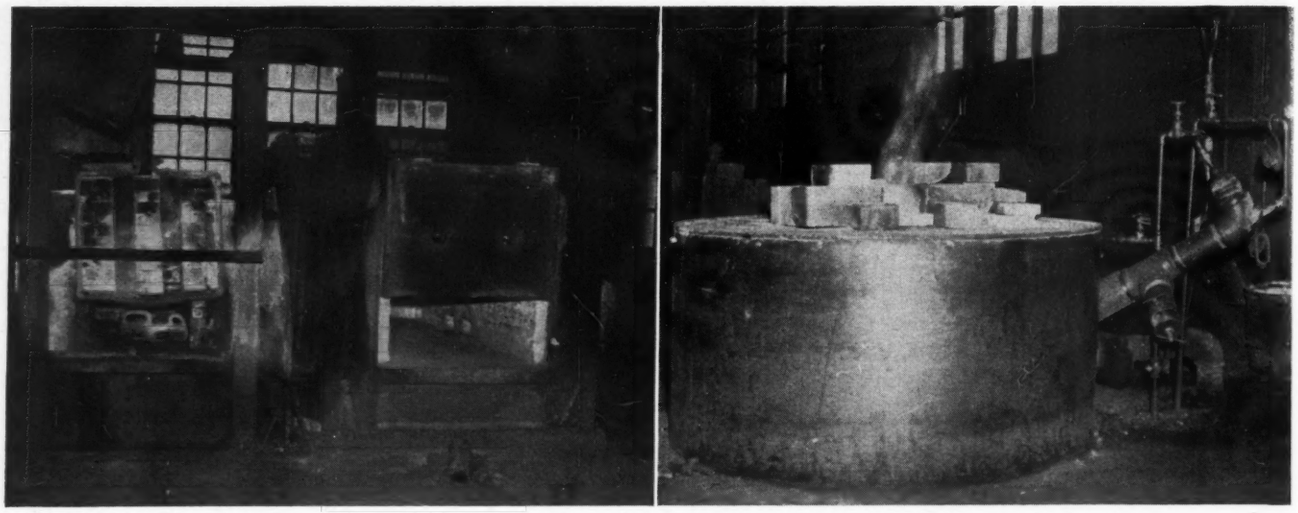
(5) SAND-BLASTING — Cleaned, welded, the length of pipe moves on to the sand-blasting plant. Hydraulic jacks lower the pipe and wheels set at an angle move it into the sand-blaster. Helper R. Pierce handles this end of the operation. The "sand" used is actually bits of steel which has higher abrasive qualities than sand.

(6) PAINTING — Machine Operator A. R. Hurst touches up pipe length as it emerges from automatic painting machine which is connected with the sand-blaster. The paint is applied to form a base for the asphalt.



(7) WRAPPING—Cleaned, welded, sand-blasted and painted, the pipe is now ready for the final operation: tarring and wrapping. The process here calls for a coat of asphalt, overlaid by a wrapping of cellophane, overlaid by a second coating of asphalt and finally wrapped in paper. Helper L. K. Miller starts a new wrap beyond a joint.

(8) RECLAIMED—The 12-in. pipe in this picture, handled like so many lengths of straw by a moving crane, is being piled ready for the Playa del Rey gas storage project, where gas will be stored for winter peak periods. Helper B. C. Just swings it into place as Crane Operator C. R. Barwick lowers away. Truck Driver F. W. Webber is seen in the foreground.



AT LEFT: A gas-fired oven-type forge on the left and a gas-fired annealing furnace on the right, in the St. Louis-San Francisco Railway Co.'s shops in West Tulsa, Okla. Conversion to gas improved the operation of both by eliminating smoke, improving distribution of heat and lessening deterioration of refractories. AT RIGHT: A view of one of the two gas-fired general purpose blacksmith forges in the company's shops in West Tulsa.

Selling Natural Gas to the Railroads

By D. W. REEVES

Industrial Sales Manager, Oklahoma Natural Gas Company, Tulsa, Oklahoma*

THE part of the railroads fuel requirements which the natural gas industry can supply is a very small portion of the total. It is limited to that required for roundhouses, shops and for the initial firing of locomotives. Since the railroads are large purchasers of fuel, they obtain a very favorable price on their firm contracts and it is this price that must be met. As a rule the roads contract for a minimum amount of fuel oil to be delivered during a fixed period at a price which is fixed within limits to vary with the cost of crude oil. The price is generally about 60% of the field price of 36 gravity crude oil. In addition there is a storage, handling, and transportation cost that must be added to obtain the competitive price of fuel at the railroad's roundhouses and shops.

Aside from price, it must be recognized that the refineries furnishing fuel oil and the railroads have a strong economic tie. A large part of the revenue of many of the railroads in the Southwest comes from handling the products of the refineries and the continued operation of the refineries is determined to a large extent upon their ability to dispose of their fuel oil. This often leads railroads to adopt a policy based on the belief that by using fuel oil exclusively to supply their fuel requirements they are contributing to the prosperity of an industry which in turn contributes materially to their welfare.

The truth of the matter is that the fuel oil which can be replaced with gas is such a small part of the total that it doesn't matter. The answer is, of course, the savings and advantages resulting from the use of gas. Sometimes a little judicious distribution of freight shipments will be the solution.

Some railroads have used gas and then abandoned it through failure of some gas companies to appreciate the problems involved. Over a period of time, the price of competitive fuels will vary and when gas is sold at a fixed rate per M c.f., sooner or later the price of the competing fuel will reach a point under the gas rate. The railroad executives note this, and they take action to see that the cost is reduced, at least to the system average. If a reduction is made in the gas rate, sooner or later the price of the competing fuel goes up and the gas utility then tries to figure out how to recover the rate decrease made to hold the business.

The only satisfactory solution which I can suggest is to tie the gas rate to the same index or measure that is used in determining the price of fuel oil. In this manner, when the price of the competing fuel increases, the price of gas will also increase and at no time will the cost of gas be out of line with the cost of other fuels, and over a period of time the rate will be satisfactory.

Possible uses of gas in the usual railroad roundhouse and shops consist of the following: (1) Boiler plant; (2) Initial firing of locomotives; (3) Furnaces, forges, heating, etc. The boiler plant usually supplies steam for heating, draft for initial firing of locomotives, operation of steam driven air compressors and electric generators, and for other incidental purposes.

In my opinion, gas engines will eventually be used to operate the air compressors and electric generating units. The possible economies are more than sufficient to justify the purchase of such equipment, and certainly the railroads have the facilities to maintain and operate such equipment, particularly since nearly all roads are now using diesel locomotives.

As a rule, the boiler plants operated by the railroads in our territory have been hand-fired and have utilized a very poor grade of fuel oil, usually with a gravity of about 10 degrees

*Excerpt from a paper presented before an industrial sales meeting, Natural Gas Section, A. G. A., at Dallas, Texas.

A.P.I. One calorimetric test of a sample of fuel oil explains some of the poor operating results. The sample was sent to the railroad's chemist and the report from him included a note which stated that the oil was not suitable for boiler operation—that it was too heavy, contained too many impurities, and that its viscosity was entirely too high. Regardless of its suitability, similar oil had been used in their boiler plants for years.

Tests of a typical railroad boiler plant using fuel oil similar to that tested, conducted during normal operation of the plant, showed an overall boiler efficiency of 66.21%. We also determined that 8.87% of all steam generated was being used for the oil pumps and for atomization of the oil. This indicated that of the heat actually being released under the boiler, only 60.34% was actually used in the generation of useful steam.

Tested After Conversion

After the plant was converted to natural gas and automatic control was installed, a similar test was run and an overall boiler efficiency of 75.82% was obtained. This proved that only four-fifths of the total B.t.u.'s were required when using gas to generate the same useful steam. In other words, 80 B.t.u.'s in gas were equivalent to 100 B.t.u.'s in oil.

It is difficult to obtain any definite figures on the amount of gas required for the initial firing of locomotives. The types and sizes of the locomotives and the temperature of the make-up water vary between wide limits.

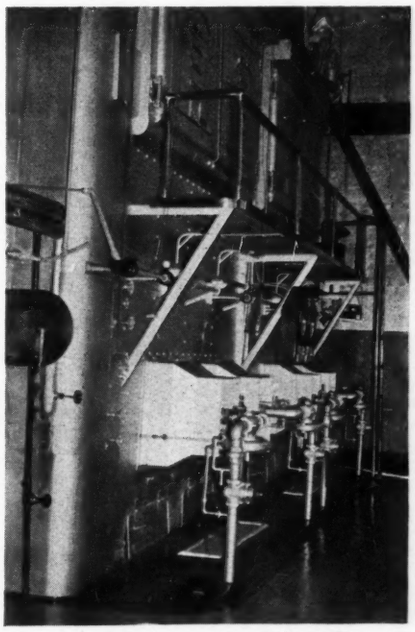
When oil is used for initial firing of locomotives, the initial firing is usually stopped at 100 lbs, and from that pressure on, steam for draft and oil atomization is furnished from the engine. Many companies have, when applying gas to initial firing of locomotives, made it a practice to raise the pressure to only 100 lbs. However, I don't agree with this idea at all. If gas represents a saving in initial firing up to 100 lbs., why not increase this saving and fire the locomotive to full pressure. This is the practice followed by customers in our territory, and we believe it is a sound one.

Complete tests which were run on four types of locomotives operated by one railroad in our territory showed that when fired from cold to 180 lbs. gauge, the average requirement per locomotive in gallons of fuel oil was 85.8 and that the same result using gas could be obtained with 10,095 cu. ft. The pounds of steam for draft using oil was 1278 and using gas was 804. Total saving in B.t.u.'s was 18 to 20%.

For the reasons mentioned above, it is impossible to make any definite estimate of the amount of gas which will be required in the initial firing of locomotives. However, we have checked the above figures and feel that they represent an average and that the per cent reduction in B.t.u.'s required will hold in nearly all cases.

Before leaving the subject of initial firing of locomotives, it might be well to mention that gas can be used for initial firing by simply making a connection to the oil line and firing through the oil burner. This has proved to be very satisfactory. We have also found that when a locomotive is not equipped properly a piece of pipe inserted in the fire box makes a fairly good burner and produces fairly satisfactory results. By forcing, you can, of course, fire as fast or faster with gas than with oil. However, it is preferrable as a rule to use a comparatively slow firing rate. I'd also like to say that results which have been obtained by other companies on other railroads indicate that the figures mentioned for initial firing are not out of line. However, you can be sure that the quantity of gas for each locomotive initially fired will vary from 5000 to 15,000 cu. ft.

One practice which we have made standard and found to pay dividends is to run complete tests on the boiler plant and on the initial firing of locomotives with both the competing fuel and gas to determine equivalents and comparative values of the two fuels. These tests are always run under the supervision of a representative of the railroad. These figures once established become the yardstick for all future discussions of the value of gas and serve to avoid arguments.



A view of the gas burners and controls on the stationary boilers, which proved that gas was best, due to the application of good burners and combustion control equipment. In the shops of the St. Louis-San Francisco Railway Co., West Tulsa, Okla.

In selling gas for use in the blacksmith shops and for incidental purposes, we emphasized more than anything else cleanliness, convenience, increased output and better working conditions. We have one large railroad blacksmith shop which uses gas exclusively. The blacksmiths were resigned to working in a smoky, soot-filled atmosphere. They will now spend hours telling you how wonderful gas is and mention its cleanliness three times to every other advantage. The use of gas in this blacksmith shop has resulted in happier employees, greater output of work per man, and a better quality of work.

Sales Program

If a program were ever developed that would assure the sale of gas to railroads and mutually satisfactory business relations for years to come, I believe it would rest on the following:

1. A sympathetic understanding of the railroads' problems, policies, and viewpoint.
2. A rate that will vary with the cost of the competitive fuel so that relative costs would remain constant.
3. Complete tests to establish equivalent values of the fuels applied to each particular plant.
4. The installation of the very best equipment available including complete automatic controls.

If it is at all possible you should arrange for your rate to include the cost of the necessary equipment to utilize gas in the shops. This is important because of their reasoning. If the railroad is financially sound, they hesitate to spend money for gas utilization equipment when they have known of cases where gas becomes expensive because the other fuel decreased in price. On the other hand, if the railroad is in financial difficulties or in one of the many varieties of bankruptcy which are available under present day laws, they can't spend a nickel and can't buy your product unless you make the investment to enable them to use your service.

Several of the railroads have recognized the many advantages of gas as a fuel for their roundhouses and shops and for the initial firing of locomotives. Several of the large railroad systems have, in fact, made it a policy to buy gas whenever it can be obtained at a satisfactory rate.

Washington Gas Light's New Home

THE Washington (D. C.) Gas Light Co. has just completed and occupied a new general office building. In the heart of downtown Washington, it is the city's newest commercial structure and embodies the most advanced construction methods and materials.

This new home of the Washington utility could be one of the showplaces of the industry, state company officials. However, the company, in deference to the District's critical floor space shortage, has temporarily accommodated itself to condensed quarters; emergency war offices of the government occupy several floors of the 12-story edifice. One of the President's administrative agencies is taking over the red brick building at 411 Tenth Street, N. W., home of the Washington Gas Light Co. for 76 years.

Completed in the face of material, transportation, and labor stringencies, the new building represents a substantial contribution to facilities for Washington's war program as well as meeting the company's urgent demands. Construction was started prior to Pearl Harbor when most of the supplies and equipment for it were already on order.

The change of quarters affected a number of departments in various locations. The company's transportation department performed all the hauling and necessary rigging on a closely organized schedule. The final cut-over was accomplished between Saturday closing time, up to which hour business was conducted at the old location, and Monday opening time when it was resumed in the new one. This occurred without serious interruption of any department function or any lapse in customer service.

No fanfare accompanied the opening, public announcements taking the form of a simple bill enclosure, a modest newspaper ad, and brief references in a standing institutional radio program. Space in the display lobby at the opening was allotted to the American Red Cross and various other wartime agencies with uniformed workers in attendance. The Servel Home Volunteers program for Washington was inaugurated at booths presided over by home service representatives.

Acquisition of this modern building comes at a time in the life of this 94-year-old company when demand for its service had reached a towering level. War agencies have brought new hundreds of thousands to the metropolitan area of Washington in the past four years, swelling its population to well over a million. The District proper has doubled its World War I population, now having 850,000 inhabitants against a high of 421,000 for the earlier period. Workers in the executive branches of the Federal Government at Washington had reached the staggering total of 117,760 on Armistice Day, 1918; today that figure is in excess of 260,000. To cope with the gigantic problem, the Washington Gas Light Co. had been expanding its production and distribution facilities as rapidly as exist conditions would permit. House heating demand is particularly heavy in the Washington area where, excepting those of recent months, more than 50% of all new dwellings employ gas furnaces. Thirty thousand individual house heating installations are now on the lines.

It is a far cry from the Washington Gas Light Co. of nearly a century ago with a capitalization of $50,000 to the present institution with its fixed capital of more than $40,000,000. Then a few hundred straggling meters furnished "illuminating" gas only—at $8 per M c. f.; now, through nearly a quarter of a million meters along 1700 miles of main, gas flows at an average rate of 74¢ per M c. f. Employees of the present company number 2200 and its annual payroll is $4,200,000.

The new building of the Washington Gas Light Co. was designed by Jarrett C. White and Leon Chatelain, Washington architects, and the general contractor was the James Baird Co., Inc. Consulting structural engineers were Marshall & Gongwer and William J. Karsunky was the consulting mechanical engineer.

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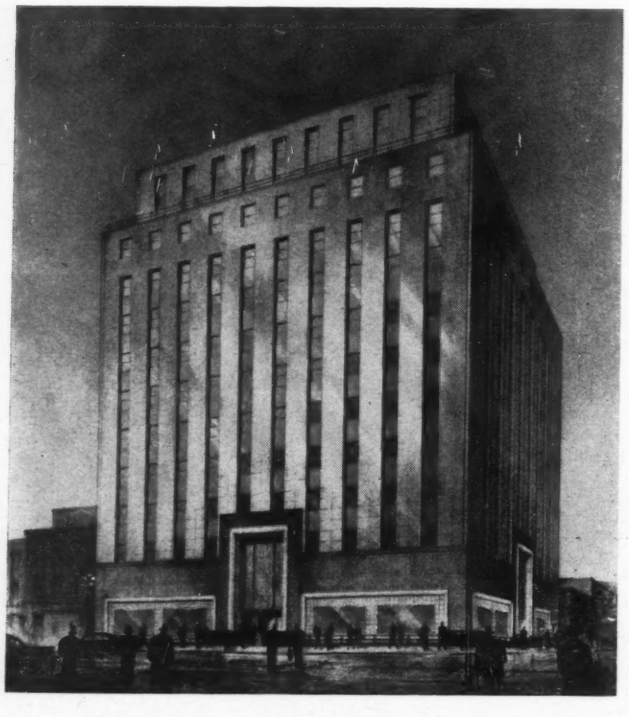

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New 12-story home of the 94-year-old Washington (D. C.) Gas Light Co. Recently completed and occupied, this modern structure has enabled the capital's gas utility to better serve the daily expanding population of wartime Washington. Several floors of the structure are now occupied by emergency war offices of the Govment.

▼

Lone Star to Lay 82 Miles Of Pipe Line in East Texas

Plans for laying 82 miles of pipe lines to bring additional gas from the East Texas field and strengthen the Lone Star System supply to meet peak demands have been completed and construction was scheduled to commence in November, according to R. Vandercook, pipe line superintendent. Lone Star Gas Co., Dallas, Texas. Julian L. Foster, general superintendent and chief engineer; Luther Tolbert, assistant pipe line superintendent, and Mr. Vandercook will direct the construction.

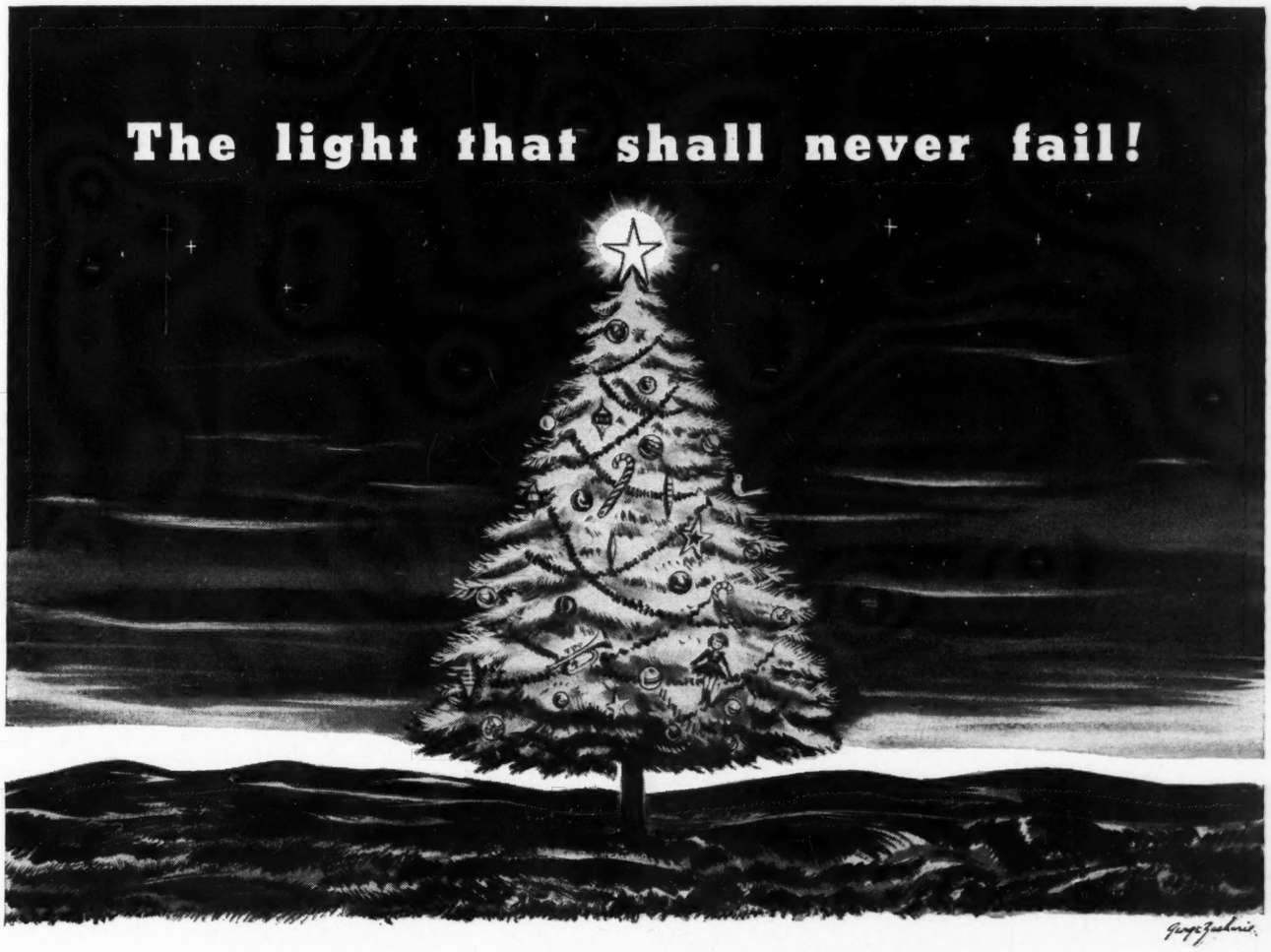
Thirty-seven miles of 18-in. pipe, made available by taking up a company line between Gordon and Granbury, will begin southwest of Dallas between Lancaster and Duncanville. Another line containing 28 mi. of 12-in. and 3⅓ mi. of 10-in. pipe will begin six miles west of Dew. Pipe used in this line was taken from lines near San Angelo and Ranger.

A third line of 8-in. pipe will run four miles starting from a point 12 mi. west of Dew, and pipe used for it has been taken up from a line in Coleman County. Another line totaling 9.7 mi. of 8-in. pipe will be laid from a point just north of Groesbeck.

■ ■

Panhandle Eastern Rids Itself of Utility Stock

Panhandle Eastern Pipe Line Co., Kansas City, Mo., has notified the SEC that it now holds no interest in any public utility company, having sold its interest in the Indiana Gas Distribution Corp. Permission had been given by SEC to Columbia Oil & Gasoline Corp. to dispose of its 50.1% common stock interest in Panhandle Eastern to Phillips Petroleum and Missouri Kansas Pipe Line Co. By this transaction Columbia Oil was to be completely dissolved.



There will be a Christmas wherever our boys are. The lighted tree will be there, too—real or envisioned.

Somehow this tree symbolizes the ideal for which they are fighting — democracy's determination — that the light of Faith and Freedom shall not perish from this Earth.

You can count on it, our boys will observe their Christmas as good Americans. Boys, now turned men, who not many years back thrilled to the big package under the lighted tree at home. Or whooped in delight at a football suit or a surprise bicycle suddenly appearing from secret hiding.

Like their fathers of another war, they will make sure that there is no dim-out of the brightness of Christmas for them. They will share Christmas in new-made comradeship. They will share Christmas as big brothers from America to put sparkle back into the eyes of war-saddened children in foreign lands.

Light your tree at home in dedication. Share your Christmas with a boy in service. Buy War Bonds in remembrance. Keep buying War Bonds that the light of Faith shall never fail. Buy War Bonds that no hand will be empty when a fervent voice says—"Praise the Lord and pass the ammunition."

BUY MORE WAR BONDS ***AND SAVINGS STAMPS***

PACIFIC GAS AND ELECTRIC COMPANY

Synthetic Rubber Is Topic For S.C.M.A. Dec. Meeting

GUY CORFIELD, research engineer, Southern California Gas Co., Los Angeles, will be the featured speaker at the Dec. 17 meeting of the Southern California Meter Association at the Rio Hondo Country Club when he will discuss the general topic of "Synthetic Rubber—With Reference to Butadiene Production." Mr. Corfield's remarks will be based upon recent and practical experience with the butadiene plant which is now being constructed by Southern California Gas Co.

Rounding out the program will be a motion picture, "Railroading," to be presented by A. X. Schillings through the courtesy of General Electric Co.

J. B. Reddick, technical supervisor's staff, Southern California Gas Co., was the principal speaker at the November meeting of the association held on Nov. 19. His address, "Method of Computing Gas Flow in Pipe Lines Using Reynolds Number," included practical new formulas, data and graphs by which pipe line flow computations can be made with greater facility. An interesting feature of the program was a color and sound picture, "Pipe Line," presented by K. C. Smith, personnel department, Texas Co., and depicting the lives of the employees of the Texas Co.

■ ■

Wrinkle Contest Suspended

The Wrinkle and Wrinkle Award committees of the Natural Gas Section, American Gas Association, have decided to discontinue the annual Wrinkle contest for the duration of the war. Due to the demands of wartime responsibilities on members of the gas industry it was felt that sufficient interest would not be maintained to insure the continued vitality of the contest.

Prior to the discontinuance of the contest the chairman of the Wrinkle committee was V. A. Ogilvie, Gas Advisers, Inc., New York City, and the chairman of the Wrinkle Award committee, Don Sillers, Lone Star Gas Co., Dallas, Texas.

■ ■

Joint Committee Meeting To Draft Compact Report

Several committees of the Interstate Oil Compact Commission will hold a conference during the winter meeting of the commission scheduled for Dec. 18-19 at the Biltmore Hotel, Oklahoma City, Okla., to formulate joint recommendations to the main body. These committees are the Research and Coordinating Committee, Dan O. Howard, petroleum engineer, Oklahoma Corporation Commission, chairman; the Regulatory Practices Committee, Theodore A. Morgan, Wichita, Kan., director of conservation, Kansas Corporation Commission, chairman; and the Legal Committee, Earl Foster, attorney, oil and gas conservation department, Oklahoma Corporation Commission, chairman.

The joint report of these committees will assist the Interstate Oil Compact Commission in making its final report and recommendations to the various states relative to the conservation and utilization of natural gas, Charles L. Orr, secretary of the commission, stated.

Accountants of New England Gas Association Meet

The accounting division of the New England Gas Association held a one-day discussion meeting at the Boston Consolidated Gas Co. building in Boston on Nov. 24. The length of the meeting was limited as a wartime measure for the conservation of time and transportation.

The general accounting group met with Chairman Vincent Farnsworth, Jr., and Vice Chairman R. J. Daniels acting as discussion leaders. Members discussed such topics as government limitation orders; accounting for transportation mileage and expenses under ODT order effective Nov. 15; accounting for payroll deductions; changes in stores accounting routine to meet existing conditions; and protection of records.

The customer accounting group, under the leadership of Chairman E. F. Embree, assisted by Vice Chairman M. J. Coughlin, considered such timely topics as bi-monthly or quarterly meter reading; post card billing; and collections without collectors.

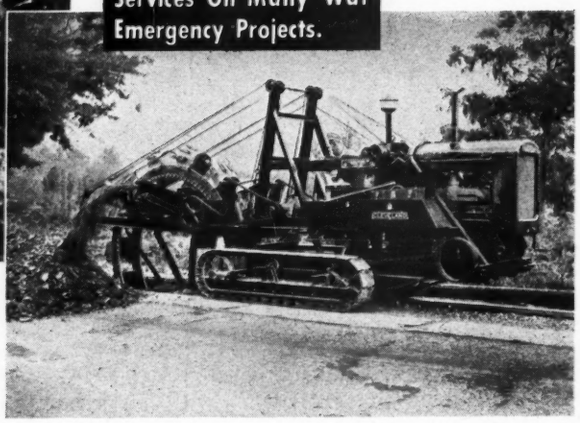
■ ■

Rate Case Postponed

The Federal Power Commission on Nov. 19 postponed from Nov. 25 to Jan. 11 its hearing to be held in Washington on the proposed increases in the wholesale rates for natural gas sold by the Allegany Gas Co., Port Allegany, Pa., to Crystal City Gas Co., Corning, N. Y.; North Penn Gas Co., Port Allegany, Pa.; and New York State Electric & Gas Corp., Ithaca, N. Y. A previous order suspended the proposed rate schedules providing for the increases.

For More Than 20 YEARS "CLEVELANDS" Have Been Delivering More Trench with Less Work and At Lower Cost On Hundreds of Pipeline Jobs.

Today "CLEVELAND" Is Proud to be Serving Our Military and Naval Services On Many War Emergency Projects.



PUT "CLEVELANDS" ON YOUR WAR EMERGENCY PIPELINE JOBS—*Whether It's:*

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IN today's pipeline construction programs, Speed, Endurance, Low Cost operation and Service are the most essential machine requirements. That's why "CLEVELANDS" fit so perfectly into the picture and are preferred equipment on so many war and civilian emergency projects, current and recent.

Geared to the job "CLEVELANDS" are delivering maximum performance, day in and day out, at rock bottom costs.

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"CLEVELANDS" Save More . . . Because they Do More

Natural Gas Contributes To Zinc Reduction Process

An entirely new gas reduction process utilizing natural gas for the reduction of zinc-bearing ores, developed by earlier experiment at the Bureau of Mines, Berkeley, Calif., will be tested on a semi-commercial scale by the bureau at a newly authorized pilot plant and laboratory which will probably be built somewhere in the south central section of the United Sates. Based on experiments dating back more than a decade, the bureau's process successfully has passed tests conducted on a laboratory-size furnace and has been found superior in several instances to commonly used commercial methods. It was felt desirable to conduct additional tests on a commercial scale furnace, or pilot plant, and certain alterations and adjustments must be expected before a method suitable for industrial use can be developed.

By this new process, the bureau's war program plant method uses natural gas in several stages of a reducing cycle from which ore concentrate emerges as high-purity zinc. The bureau believes that the untapped reserves of zinc ores and the abundance of natural gas can be paired successfully into an industrial team which will speed the output of zinc essential to the manufacture of galvanized iron, zinc alloy die castings, brass cartridge cases for guns, batteries and a multitude of other items.

Experiments by bureau metallurgists indicate that it may be possible to extract as much as 95% of the zinc from the ore at a substantial reduction in production costs by this new process.

■ ■

Sour Gas Presents Problem In Arkansas Oil Production

In a statement recently issued by the Arkansas Oil and Gas Commission it is reported that operators in the Magnolia field, the state's largest oil field, have discovered severe corrosion of well pipe caused by association of sour gas with the oil or electrolysis. Thus, sour gas which has been a boon to Arkansas industrially after being converted into sweet gas now may be threatening trouble.

The Magnolia field contains 160,000,000 barrels of crude oil underlying 200,000,000,000 cu. ft. of hydrogen sulphide-bearing gases and would be in danger of ruin if any one of its 115 wells should get out of control. After four years of continuous production, reservoir pressure is in excess of 3000 lb. per sq. in.

Such a catastrophe is being forestalled by a simple remedial measure first started by Grady H. Vaughn. The wells, the majority of which are some 7500 ft. below the surface, are simply having the space between the tubing and the casing filled with mud which weighs about 10 lb. per gal.

■ ■

Tests of Distillate Well Gases Held by N.G.A.A.

Second in a series of field tests on distillate well gases sponsored by the high pressure division of the Natural Gasoline Association of America took place during the last week of October at the Lockhart Petroleum Corp.'s No. 1 Lulling Foundation near Robstown, Texas. C. R. Williams, general superintendent, Chicago Corp., Corpus Christi, was in charge of the tests, while W. L. Bowser, Atlanta Refining Co.; D. A. Sillers, Lone Star Gas Co., Dallas, Texas; J. C. Birdall, Lockhart Petroleum Corp.; T. A. Mathews, Phillips Petroleum Co., and William F. Lowe, secretary-treasurer, N. G. A. A., Tulsa, had charge of operations at the well.

The main objective of the tests was to study various known methods of securing representative samples of gases from distillate wells. Experiments were also made with a new apparatus for determining the specific gravity of two-phase gases developed by H. L. Oder, Cities Service Oil Co., and Mr. Sillers.

■ ■

Carbon Black Plant to Be Erected at Borger, Texas

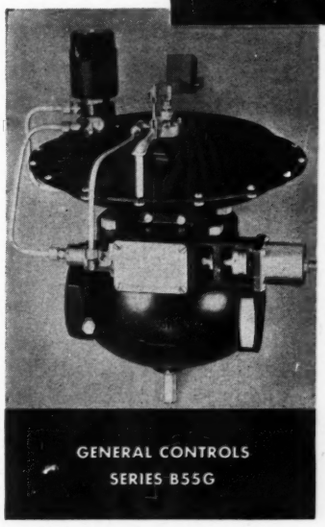
Officials of the J. M. Huber Corp. announce that construction will start early in December on their new carbon-black plant three miles west of Borger, Texas. The plant will be capable of producing 6,000,000 lbs. of furnace black annually and is being built primarily to assist in the production of synthetic rubber.

Fractionating Units Aid Aviation Gasoline Process

Plans have been completed and actual construction of additional fractionating units to the Lone Star Gasoline Co.'s Plant No. 101, three miles southwest of Ranger, Texas, awaits only the final approval of the WPB. J. R. Jarvis, superintendent of gasoline plants, stated that application for installation of similar units to the Lone Star Gas Co.'s gasoline plants at Trinidad have been made.

The fractionating units at the Ranger plant will take natural gasoline from Breckenridge and other company plants in the West Texas area and process it into isobutane, normal butane, isopentane, normal pentane and heavier hydrocarbons. Isobutane and isopentane are used for blending with other refinery stocks to make aviation gasoline.

NEW
GENERAL CONTROLS
COMBUSTION CONTROL



The B-55-G Slow Opening Diaphragm Gas Valve is electrically piloted, and additionally acts to maintain a constant steam pressure at all times by throttling the gas flow and secondary air in direct proportion. The operating principle of the B-55-G is the same as the conventional type B-55 diaphragm operated fuel supply valve, with the additional feature of the governor, which regulates the fuel supply to the burner in direct relation to the steam pressure and eliminates the undesirable "hunting aspect" which is common to most throttling valves. Sizes: 1" to 6" I.P.S. WRITE FOR NEW CATALOG No. 52 containing complete specifications.

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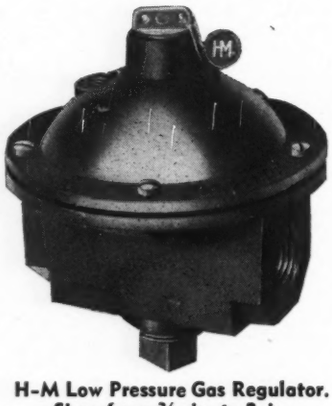
FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

A MAXIMUM OF ENGINEERING PERFORMANCE



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Is Now Being Used in Making War Materials

To Beat the Axis

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THERMO CONTROL CO.

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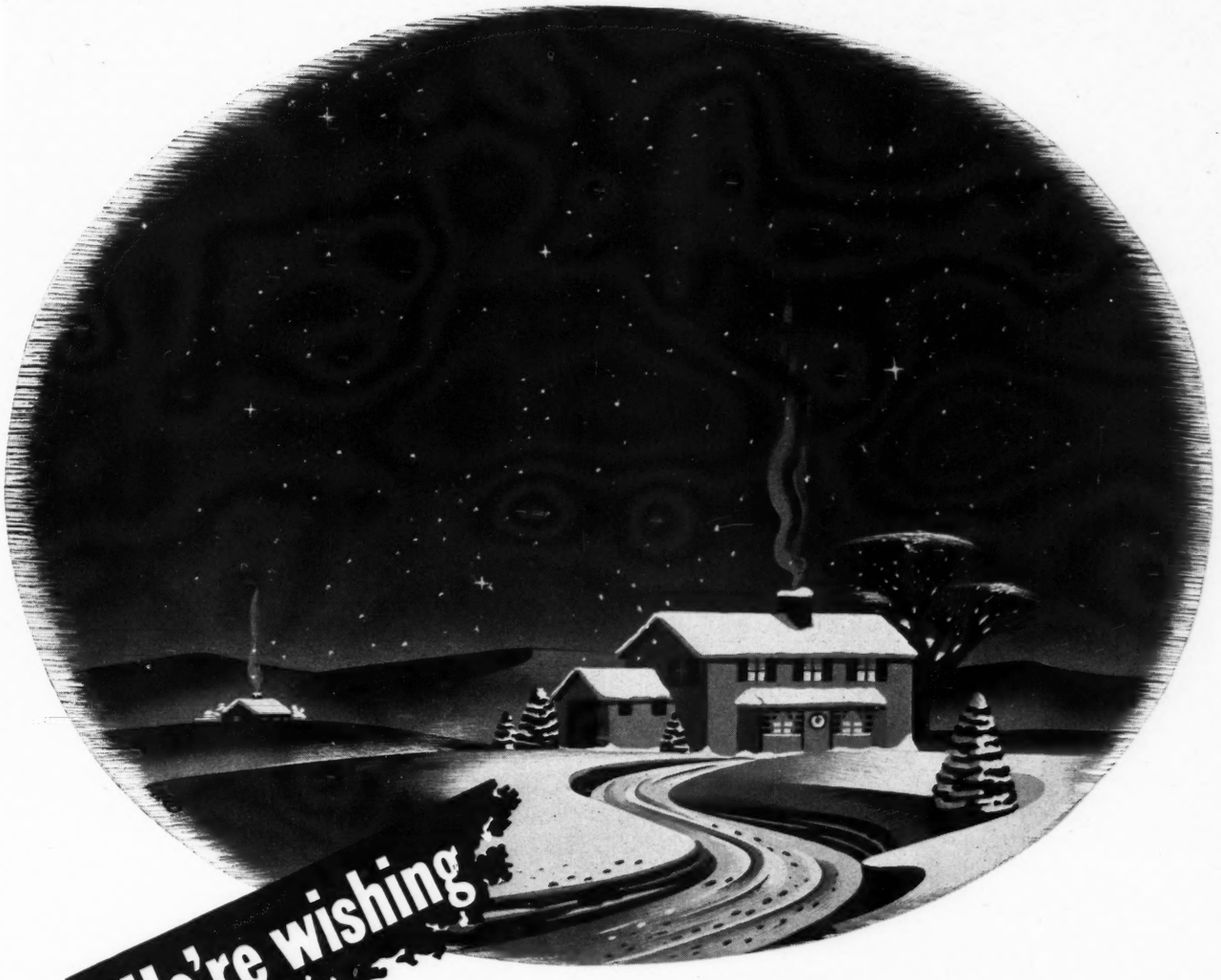

We're wishing for a White Christmas

For December 25, *1943* we're wishing for a real old-fashioned white Christmas, where the driven snow no longer runs red with the blood of human sacrifice. We're wishing for a world returned to normal—a world in which every man can live at peace with his fellow men.

We're wishing, yes! But there's more to it than that. We're doing everything possible to make those wishes come true.

The Geo. D. Roper Corporation is devoting its large equipment and skilled personnel 100% to manufacturing implements of destruction—implements which will smash the axis and keep the United States the citadel of freedom.

By the time another Christmas rolls around may we have advanced far along the path to Victory. May we begin to see the dawn of a new world over the horizon.

And for this Christmas—well, let's appreciate those many blessings we enjoy. And let's devote everything we've got toward preserving them.

BUY WAR BONDS

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GENERAL SALES OFFICE AND PLANT: ROCKFORD, ILLINOIS

Roper Gas Ranges for All Type Gases Including (LP) Liquefied Petroleum Gas

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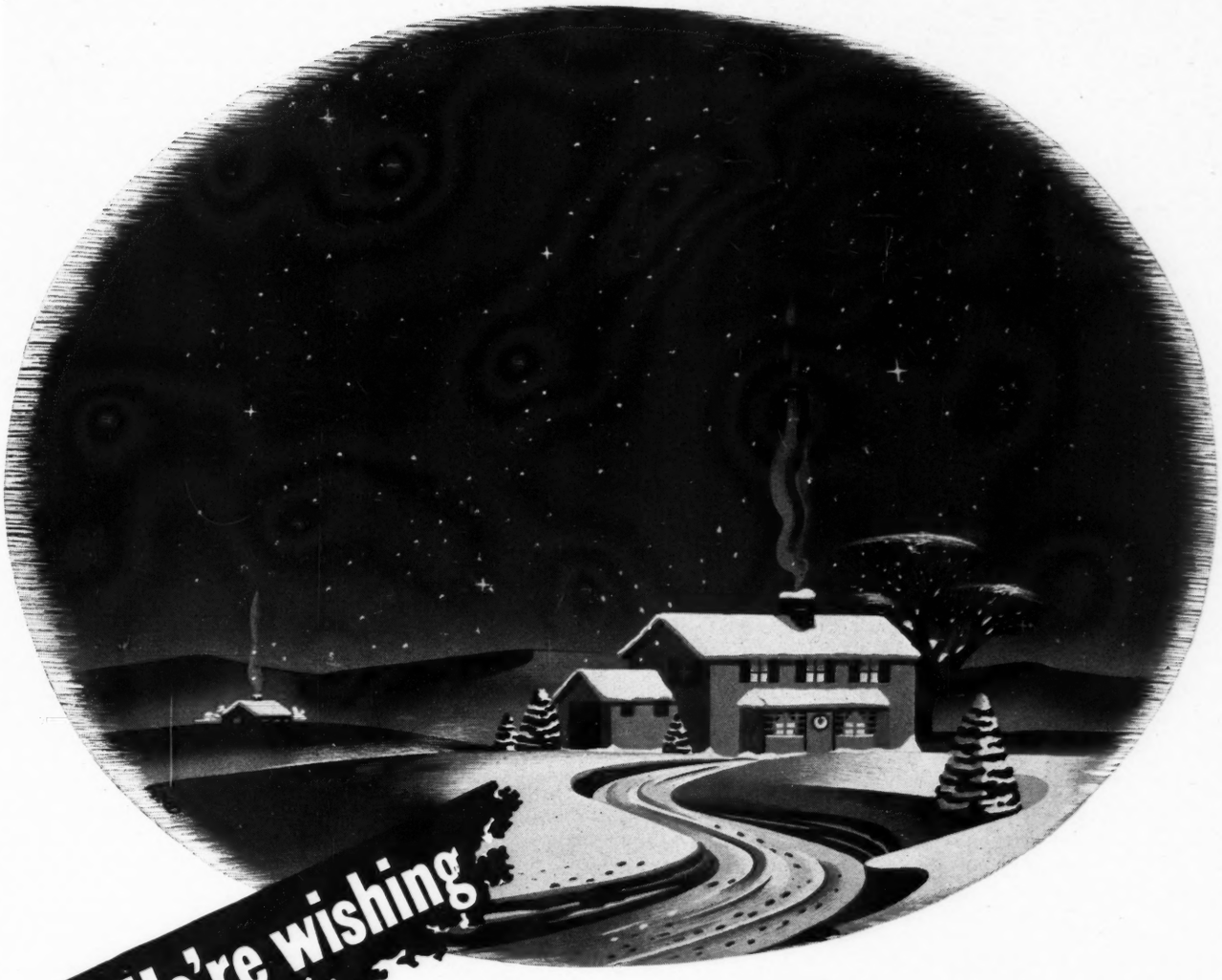

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ABSTRACTS

Books and Reports

Progress Report on Standards of Allocation of Oil Production Within Pools and Among Pools—Published by the Special Study Committee and Legal Advisory Committee on Well Spacing and Allocation of Production of the Central Committee on Drilling and Production Practice Division of Production, American Petroleum Institute. The third progress report issued by this group. The result of 10 years' study on the problem. Discussions include: Recommendations; Principles of Conservation; Technology of Petroleum Production; Applicable Legal Principles; Allocation Within Pools; Allocation Among Pools. Appendix includes: Report of Legal Advisory Committee; Bibliography of Legal Phases of Allocation of Production; Bibliography of Engineering Phases of Petroleum Conservation; and a Report of the Engineering Committee of the Interstate Oil Compact Commission. Price of the 98-page book is $1.25. Orders may be sent to American Petroleum Institute, 50 West 50th St., New York, N. Y., or the API Division of Production, 1205 Continental Bldg., Dallas, Tex.

Quantitative Determinations by Gas Liberation—Gilbert E. Seil, technical director, E. J. Lavino & Co., Philadelphia, Pa. Methods for quantitative determinations by gas liberation are based upon:

1. Chemical reactions by the reagents which quantitatively yield a gas as one product of reaction in molecular proportion to the substance determined.
2. Determining the quantity of the liberated gas either by measuring the pressure at constant volume or by measuring the volume at constant pressure, including corrections for temperature changes.
3. Calculating the amount of substance present in the sample from its molecular relationship to the quantity of gas liberated. Description of apparatus and typical calculations are included.

Arc Welding in Gas Plant Maintenance—E. W. P. Smith, consulting engineer, The Lincoln Electric Co., Cleveland, Ohio. Arc welding in gas plant maintenance is not greatly different than in any other field of welding. It requires primarily a basic knowledge of welding plus a knowledge of the requirements or services to be met in the gas plant. A brief review of some of the welding factors are given, together with some discussions of application of welding, which show clearly how easy and simple and how very effective this combination of welding and maintenance may be. Such items as welding of steel, plant maintenance, new pipe lines, repair of pipe lines, repair and replacement of castings, and surfacing are dealt with and illustrate typical applications which may be made in specific cases.

Chemical Refining of Petroleum—Vladmir A. Kalichevsky and Bert Allen Stagner, Ph. D.; 550 pages; tables; figures; illustrations; published by Reinhold Publishing Co., 330 West 42nd St., New York, N. Y.; $7.50. The volume presents the theory and practice of the various chemical processes used in refining petroleum and its products and in improving certain desirable characteristics of the finished products. This is a revised edition which includes new material developed since the first edition was issued 7 years ago.

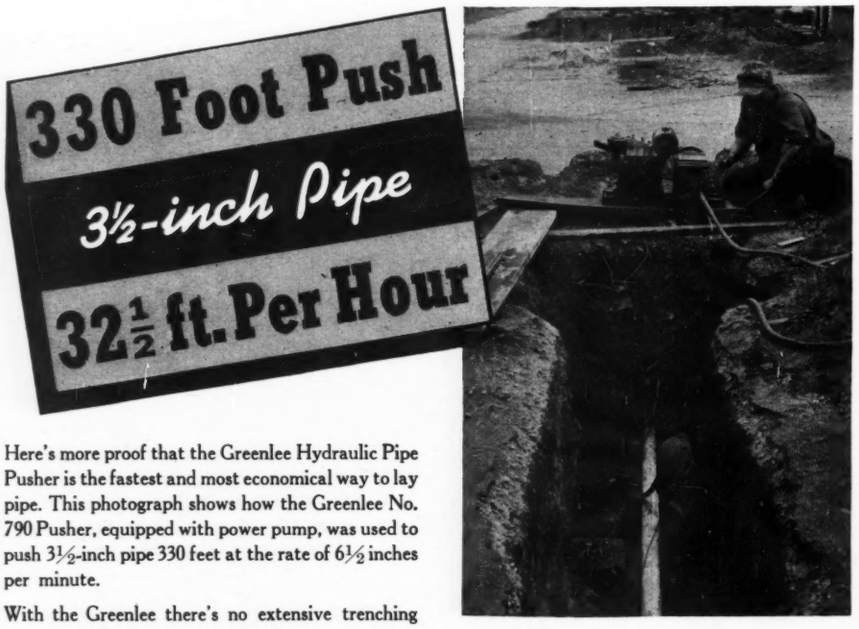
Handbook of Welded Steel Tubing—Formed Steel Tube Institute, 1621 Euclid Ave., Cleveland, Ohio. (102 pp.; fabrikoid; diagrams, photographs, tables; $1.) An industrial reference book giving information on methods of manufacture, standards, fabricating methods, elements of sections, and other pertinent data intended for engineers planning the use of steel tubing in design. Articles which use welded steel tubing are listed, and an appendix gives design data tables with properties and formulas.

Current Periodicals

Camouflaging the Industrial Plant From Aerial Attack—Harper Goff *The Petroleum Engineer*, Oct., 1942, p. 33. To hide or obscure adjacent reference points even several miles away is as necessary as to do so to the target itself. If the enemy is to be kept from rapidly penetrating our mask, we must resort to area camouflage.

High-Pressure Gas Measurement—Donald L. Katz, T. A. Matthews, and C. H. Roland. *The Petroleum Engineer*, Oct., 1942, p. 54. A standard procedure for converting orifice meter readings on high-pressure gases into quantities of gas flow is desirable for the natural gas and natural gasoline industries. Such standards have been used for low-pressure gases for many years and cover most of the procedures for high-pressure gases. The chief item upon which complete agreement has not been reached is the correction for deviation of the gas from ideal gas laws. The compressibility factor method is generally accepted and the lack of agreement lies in the method of choosing this compressibility factor for specific cases. The prime purpose of this article is to suggest standard procedures for selecting meter correction factors to account for the pressibility of the gas flowing. A brief discussion of measuring the flow of two phases is included.

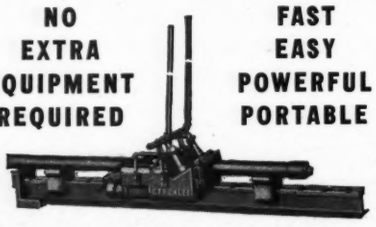
Plastic Pipe and Tubing One Solution of Metal Shortage Problem—*The Petroleum Engineer*, Oct., 1942, p. 142. Keeping the rate of production at a maximum level in the oil industry means extra wear and tear on equipment such as small pipe and tubing. One answer to the stringent metals situation now facing the oil industry is saran plastic pipe, a product that has a wide variety of applications and is manufactured to fit and to fill many needs. The pipe is tough, durable, flexible, and non-scaling. Other unusual properties are its ability to resist the solvent and corrosive action of oils, soaps, chemicals and moisture.



Here's more proof that the Greenlee Hydraulic Pipe Pusher is the fastest and most economical way to lay pipe. This photograph shows how the Greenlee No. 790 Pusher, equipped with power pump, was used to push 3½-inch pipe 330 feet at the rate of 6½ inches per minute.

With the Greenlee there's no extensive trenching no pavement cutting, no backfilling, no repaving. Only a short trench is dug to accommodate the pusher and pipe. One or two men can easily develop the hydraulic power needed, or for extensive pushing, a power pump can be attached. Write today for complete information.

NO EXTRA EQUIPMENT REQUIRED



FAST EASY POWERFUL PORTABLE

GREENLEE TOOL CO.
1952 COLUMBIA AVE. • ROCKFORD, ILL.

Carbon Black Plant to Be Built at Guymon, Okla.

THE Cabot Carbon Corp., Boston, Mass., was given authority by the Oklahoma Corporation Commission, Oct. 15, to construct a furnace type plant 2¼ miles northeast of Guymon, Okla., to manufacture carbon black to be utilized in the manufacture of synthetic rubber.

E. L. Green of Cabot Carbon, Pampa, Texas, stated that the plant will cost $500,000 and will utilize 7,000,000 cu. ft. of natural gas daily. Mr. Green revealed that his company has been given high priority rating to secure the necessary construction materials.

Natural gas from large producing wells owned by the Cabot Carbon Corp., in the Texas County, Okla., sector of the Hugoten field will supply gas for the plant. A yield of approximately 10 lbs. of carbon black is expected per M c. f. The plant will employ 40 to 50 persons and will be permitted to use up to 10,000,000 cu. ft. of natural gas produced in the vicinity.

The Cabot Carbon Corp. has six plants in Texas and one in West Virginia. It had a channel-type plant near Seminole, Okla., which was closed six months ago.

■ ■

How European Gas Supplies Are Enduring in Countries at War

An analysis of the changes made in declared calorific value in Great Britain during the 12 months approximately ended at July 1, 1942, is interesting. The total number of changes is 31, of which all except three were in a downward direction. The reductions of the 28 undertakings ranged from 60 to 10 B. t. u., and the B. t. u. averaged 26. Previous declarations averaged 485.3 B. t. u., which was brought down to an average of 459.3 (calculated by percentage, the reduction of new declaration on old is an average of 5.37%.

Gas supply in Dresden, Germany, has had to be curtailed owing to the extremely high consumption in households. Consumers have been told that because gas has not so far been rationed that does not mean that they can waste fuel. Rationing will not be introduced yet, but pressure will, and if at any time consumption is considered unduly high, the gas may be cut off for some hours. Finally, the public is warned not to complain to the service, as it will do it no good.

So great is the fuel problem in Italy that the Duce himself called Senator Gai of the Italian Charcoal Gas Association for an interview. It is understood that Mussolini told him to speed up production of charcoal gas so as to economize in other fuels.

■ ■

Sacramento, Calif., Seeks to Buy Electric Distribution System From P. G. & E.

Pacific Gas & Electric Co., San Francisco, will receive $11,632,000 for the electric distribution system which it operates in Sacramento, Calif., according to a price fixed by the California Railroad Commission Nov. 25. The Sacramento Municipal Utility District for some time has sought to purchase the property, having offered $9,963,000. P. G. & E. asked $18,303,000 for the system.

The Railroad Commission action culminated lengthy discussions extending over a period of years, and opens the way for direct negotiations between the utility district and P. G. & E.

The valuation was fixed as of May 21, 1938. Thus the value of betterments and additions to the system since that time must be added and an estimate of depreciation subtracted to arrive at a final figure.

■ ■

Brooklyn Union Donates 43 Typewriters

Brooklyn Union Gas Co., Brooklyn, N. Y., has admirably responded to the Government's appeal for typewriters by donating 43 machines to the War Production Board.

The contribution, made by President Clifford E. Paige, brought considerable praise from WPB official Emile Zola Weinberg, who said, "Your patriotic contribution puts Brooklyn Union in the front ranks of the many Brooklyn firms who have responded to our appeals. Your company is to be congratulated."

■ ■

New Shallow Gas Field

The Phillips Petroleum Co., Bartlesville, Okla., has opened a shallow natural gas field near Checotah, McIntosh County, Okla., and plans to drill three more wells in the area provided authority can be secured.

The company's No. 1 well in the area was drilled to the dry Wilcox sand at 2983 ft. and gauged 3,400,000 cu. ft. per day.

★ REYNOLDS builds an approved Regulator for every type of Gas Control Installation. Approved by the records of performance in actual operation, or by records of factory tests on new developments, every REYNOLDS REGULATOR, regardless of its field, whether for High or Low Pressure, is not only approved but a proved product.

★ Long Life—Efficient Operation—Accurate Regulation—Reasonable Cost—Low Upkeep—all of these vital features are inherent with REYNOLDS REGULATORS. These features are a development of half a century of experience in developing, designing, building and testing Gas Control Equipment.

For full cooperation of our Engineering Department, Write our Factory, Branch Offices or Representatives.

REYNOLDS PRODUCTS

High Pressure Service House Regulators: Straight Lever Type—Models 10-20 Series. Toggle Lever Type—Model 30 Series.

Low Pressure Service or Appliance Regulators.

District Station Regulators. Single or Double Valve. Auxiliary Bowl and Automatic Loading Device Optional.

High Pressure Line Regulators—Pilot Loaded—Pilot Controlled.

Toggle Type Regulators. Single Valve. Double Valve. Triple Outlet.

Seals: Dead Weight or Mercury.

Relief Valves: High or Low Pressure.

Back Pressure Valves. Automatic Quick-Closing Anti-Vacuum Valves.

Automatic Shut-Off Valves.

Lever Operated Valves.

Louver Operated Device.

Atmospheric Regulators.

Vacuum Regulators.

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Kansas City, Mo.

2nd Unit
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Boston, Mass.

Wm. A. Ehlers
No. 268 Park St.
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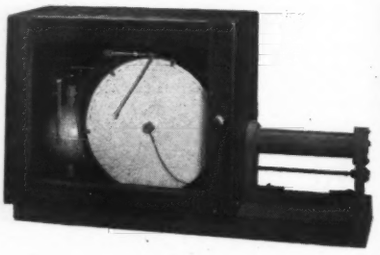
Gas Control Since 1892

REYNOLDS GAS REGULATOR CO.
ANDERSON, INDIANA, U. S. A.

FIRST CHOICE

of Major Company Engineers in

Pipelines and Refineries



ARCCO-ANUBIS

Liquid Gravitometers

INDICATING and RECORDING TYPE

Anubis Indicating and Recording Liquid Gravitometers have proved their accuracy and dependability during years of service in important pipeline and refinery installations in the United States and abroad. Hundreds have been installed in the new strategic pipelines and plants in the past few months.

Automatic temperature compensation enables them to indicate or record the specific gravity of a small, continuously flowing sample of liquid as of 60° F. (or other pre-determined temperature) regardless of the actual temperature. Sample may be under several hundred pounds pressure, but differential pressure of ½ pound from any source is enough to flow liquid through the instrument, with complete purge effected in slightly over one minute. Thus, changes in specific gravity are shown with great accuracy and with minimum time lag. Foreign liquids are purged and gases exhausted automatically. Perfectly adapted to high pressure operation.

Send for Bulletin No. 111-A

AMERICAN RECORDING CHART CO.

3113 E. 11th St., Los Angeles, Calif.

510 So. Lansing Ave., Tulsa, Okla.

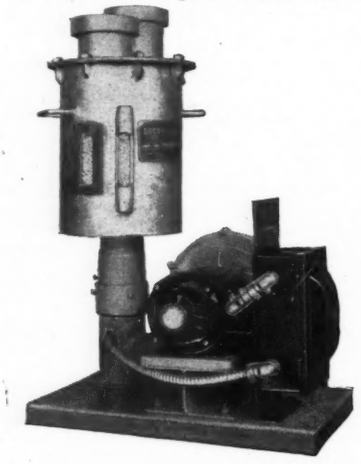
PRODUCTS

Moisture Controller

Pittsburgh Lectrodryer Corp., 1039 32nd St., Pittsburgh, Pa.

Model: Lectrobreathers.

Description: Used to prevent the entrance of atmospheric moisture into oil and chemical tanks. They permit only dry air to enter the tank when it is emptied or when air enters



due to temperature drops. Air leaving the tank, being thoroughly dry, has a partial reactivating effect which makes possible long periods between reactivations. They are mounted either directly on the tank or piped to it and are equipped with a color indicator to determine when reactivation is needed or when it is complete. Special Lectrobreathers are available for use on transformers or other equipment where atmospheric moisture is harmful. They use activated aluminas, which are dependable, time-tested adsorbents.

■ ■

Welding Electrode

Wilson Welder & Metals Co., Inc.

Model: A-C All-Position Welding Electrode.

Description: A new electrode designed specifically for all-purpose welding of mild steel with A-C type welding machines. This electrode, Wilson No. 530, is made in the following diameters: 1/16 in., 3/32 in., 1/8 in. and 5/32 in., and physical tests demonstrate that it is definitely superior to preceding all-position A-C electrodes. The high quality of deposited metal of the No. 530 is fully comparable to that of the best D-C reverse polarity all-position electrodes. Good fusion and complete penetration are easily acquired and the finished weld deposit is smooth and has a uniform surface contour.

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Plastic Tubing

Hodgman Rubber Co., Farmingham, Mass.

Model: "Saran" tubings and fittings.

Description: These new thermoplastic fittings and tubings are claimed to have the ability to resist chemicals and solvents at room temperature. The tubing is specifically designed to replace such valuable war materials as aluminum, stainless steel, nickel, copper, brass, tin and rubber. The insulating qualities, flexibility and ease of handling will make "Saran" products particularly adaptable in installations requiring the transport of oil, gas, acids and corrosive chemicals. For resistance, many agents and solvents required individually may be transported together through Saran.

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Butterfly Valve

R-S Products Corp., Wayne Junction, Philadelphia, Pa.

Model: Three-way Butterfly Valve.

Description: Unusually quick action is provided in a three-way valve of the butterfly type, according to a recent statement of the manufacturers. It is designed for mixing and quick interchange service and is adapted to fully automatic control by means of an air diaphragm motor or hydraulic cylinder. The valve is constructed of cast steel or cast iron for pressures up to 600 lb. per sq. in. When desirable, special metals for resistance against heat, abrasion and corrosion can be substituted, with a saving in cost. A special feature of the valve is the self-cleaning, double-beveled, streamlined vane. It sits wedge-tight against the body of the valve, thus producing a tight shut-off as well as positive control of volume and pressure. A reach rod with declutching unit is provided for automatic operation or manual control in case of power failure in inaccessible locations.

Catalogs

• Fisher Furnace Co., 1740 No. Kolmar Ave., Chicago, Ill., has just published two pieces of literature, Bulletins No. 350 and No. 400 in which a wide range of stationary crucible melting furnaces—oil and gas fired—for melting copper, brass, bronze, copper nickel alloys, aluminum and other non-ferrous alloys, grey iron and grey iron alloys, are illustrated and described. Bulletin No. 350 (eight pages) also includes information on silicon carbide linings, furnace cement, fuel oil pumps, oil pressure gauges, oil pressure relief valves, oil strainers, tongs, etc. Bulletin No. 400 is concerned with hand wheel operated tilting type crucible melting furnaces—oil and gas fired —for melting brass, bronze, yellow brass, copper nickel alloys, iron, iron alloys, etc.

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• Robertshaw Thermostat Co., 30 Church St., New York, N. Y., has issued an 18-page illustrated booklet covering various efficient types of thermostats for a wide range of equipment. It contains helpful information about the advantages, economics and operation of thermostatic controls for commercial cooking equipment.

New Odorant Plan Submitted By Texas Gas Companies

THE main natural gas distributing companies in Texas, including the Lone Star Gas Co., Community Natural Service Co., Brazos River Gas Co., El Paso Natural Gas Co., have submitted a plan to the Railroad Commission upon which it will issue a new gas malodorization order.

The gas companies, offering testimony in support of the proposed new order, said it would permit gas distributors to prove in courts of law that they probably had odorized their product.

The Texas Supreme Court on Oct. 14 had ruled invalid the original order of the Texas Railroad Commission requiring odorization of gas furnished domestic customers on the ground that it was too vague and indef-

Lone Star representatives submitted they requested that the order should include certain approval for the type and location of equipment and for the specific procedure of room tests. Under the new order odorizers and odorizing equipment must be approved by the commission, and a satisfactory agency would indicate approval or disapproval of plans and specifications describing the equipment to be used for the introduction of malodorants.

If the new order is issued, each company would be required to make a representative number of room tests within 90 days in the areas where it markets gas.

El Paso Natural Gas, in requesting that it be exempted from the use of malodorants, submitted evidence to prove that its product complied with the limits prescribed by the commission and showed that recent tests demonstrated that small amounts of the gas could be detected.

■ ■

Louisiana's Butadiene Supply To Be Polymerized Soon

According to a recent announcement from Cleveland, Ohio, synthetic rubber components produced at Baton Rouge and Lake Charles, La., by Cities Service Co. and Standard Oil Co. of Louisiana will be polymerized in two nearby plants to be operated by Firestone Tire & Rubber Co.

The Cities Service refinery at Lake Charles promises to be one of the most modern plants in the nation for the production of synthetic rubber components in addition to other war and civilian materials.

H. K. Ferguson Co., Cleveland, Ohio, was awarded the contract for construction of two polymerization plants by the Defense Plant Corp., subsidiary of the Reconstruction Finance Corp., which will own the installations.

One of the pioneer producers of butadiene, Standard Oil Co. of Louisiana is augmenting its standard facilities by substantially increased capacity.

■ ■

New Directory of Gas Utilities Issued by FPC

The "Directory of Gas Utilities in the United States—1942" has been published by the Federal Power Commission. This 536-page book contains data on natural, manufactured and mixed gas companies in the United States and was compiled by the Commission in collaboration with the Work Projects Administration from data supplied by the utilities.

The wide coverage of the publication makes available a complete and authoritative list of all publicly and privately owned gas utilities in the country, as well as many industrial enterprises which sell gas for ultimate public consumption.

The new publication is attractively bound in red simulated leather with a page size of approximately 6x9 in. Copies can be obtained from the Federal Power Commission, Washington, D. C., at $2 per copy.

■ ■

Election to Decide Gas Company Sale in Iowa

An election will be held in Council Bluffs, Iowa, in December on a proposal that the city of Council Bluffs buy the Council Bluffs Gas Co. The contract to negotiate the purchase has been awarded by the council to Guy C. Myers, New York investment banker.

Lunch Plan Brings Praise To Bridgeport Gas Light

Under the supervision of R. A. Malony, sales manager, and Betty Stafford, home service director, the Bridgeport (Conn.) Gas Light Co., instigated a program called "Give a Man a Lunch He Can Work On." This program, which now has had several months of successful application, was originally devised to assist homemakers in packing nutritious lunches for war workers.

The campaign has attracted the attention of the National Health Council and the Office of Defense Health and Welfare Service in Washington and has been given much publicity on radio programs.

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PEOPLE

H. D. Borger, formerly assistant treasurer of the Peoples Natural Gas Co., Pittsburgh, Pa., has been elected treasurer and director, the board of directors of the company announced. Mr. Borger succeeds the late **Sidney J. Ratcliffe,** who died in September. He is a brother of **Edward M. Borger,** president of Peoples Natural Gas Co., who left recently to join the American Field Service.

H. D. Borger

Mr. Borger started with Peoples Natural Gas in 1922 as an office boy and rose through the various positions in the accounting department until he was made assistant treasurer in 1934.

• •

Weldon M. Pagett, assistant secretary of the Pan American Gas Co., and **Lloyd V. Tracht,** assistant secretary and assistant treasurer of the United Gas Corp., both of Houston, Texas, have been elected to membership in the Controllers Institute of America, a technical and professional organization of controllers devoted to improvement of controllership procedure.

Many members of the gas industry have been elected to the public utilities section of the National Safety Council, for the year 1942-1943.

W. R. Smith, Public Service Electric & Gas Co., Newark, N. J., has been named chairman of the engineering committee, and **H. H. Berman,** Consolidated Gas, Electric Light & Power Co., Baltimore, Md., was also named to that committee.

The data sheet sub-committee will have **W. T. Rogers,** Ebasco Services, Inc., New York, N. Y., as its chairman.

The National Safety Council's new list of councillors includes **John J. Barada,** The Laclede Gas Light Co., St. Louis, Mo.; **E. S. Beaumont,** The Peoples Gas Light & Coke Co., Chicago, Ill.; **C. B. Boulet,** Wisconsin Public Service Corp., Milwaukee, Wis.; **J. B. Douglas,** The Philadelphia Gas Works Co., Philadelphia, Pa.; and **H. A. Ptolemy,** Public Service Co. of Northern Illinois, Chicago.

C. L. Hightower, United Gas Pipe Line Co., Shreveport, La., has been made a special representative of the council.

• •

William F. Huff, special consultant to the deputy petroleum coordinator for war, has resigned to return to private business in California. Well known in the oil industry as a materials expert, Mr. Huff joined OPC in January, 1942, when he was appointed director of the then newly created division of materials.

• •

Leonard H. Verschoor, sales executive of the Michigan Consolidated Gas Co., Grand Rapids district, has been appointed administrator of civilian war transportation for Kent County, it was announced recently. Mr. Verschoor is being loaned to the war transportation committee and will be actual head of civilian war transportation in the county.

• •

Allen P. Livar has been appointed chief engineer, Airtemp division, Chrysler Corp., Dayton, Ohio, according to a recent announcement by **D. W. Russell,** president. Mr. Livar has served Airtemp since 1937 as chief heating engineer and, in his new capacity, will take over the duties of **R. G. Wyld,** who has accepted the commission of lieutenant, senior grade, in the U. S. Navy.

A veteran in the heating and air-conditioning industry, Mr. Livar has made many outstanding contributions in product design, manufacturing methods and field appliances. In the Airtemp line, these have included the Airtemp percolator boiler, inclined crown sheet steel furnace, ribbon gas burners and numerous refinements in both heating and cooling equipment.

• •

Community Natural-Texas Cities vice president, **L. B. Denning, Jr.,** has announced the appointment of **Alvis R. Rickets,** formerly located at Greenville, as sub-district manager at Wolfs City, to succeed **T. J. Ingram,** resigned. Also **George B. Burton,** formerly located at Pauls Valley, has been appointed sub-district manager at Purcell, succeeding **L. E. Self,** resigned.

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Grady G. Morton, formerly located at Eastland, has been appointed sub-district manager at the Knox City branch of Community Natural-Texas Cities gas companies. Mr. Morton succeeds **Walter E. Cooper** at Knox City, who resigned.

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E. L. Buelow, superintendent of the San Angelo division of Community Natural Gas Co., has been appointed a director of the West Texas Chamber of Commerce for the coming year.

• •

William J. Brown, New York zone sales manager of the original equipment division of the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., has been transferred to the Brown Instrument Co. division of Minneapolis-Honeywell and will be in charge of expediting material in the New York area.

The Brown division of M-H is devoting its entire manufacturing facilities to producing controls for war industries and recently announced development of the "Flight Recorder," which is making the flight tests of American fighting planes more certain. The recorder, which functions as a "man Friday" for test pilots, automatically records temperatures at as many as 144 different points in a plane in three minutes.

• •

John V. McKinney, president, Iowa-Illinois Gas & Electric Co., has announced two changes in the personnel of his company. **E. T. Williamson,** Moline, Ill., has been appointed assistant to Mr. McKinney, and **H. Parker Weeks,** Rock Island, Ill., has been made manager of the Illinois district.

Mr. Williamson will be stationed at Rock Island. He has been manager of the Illinois district of the Iowa-Illinois Gas & Electric Co. since Jan. 1 when the new company replaced the Peoples Power Co. Prior to that

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he was vice president of the Peoples Power Co., in charge of operations.

Mr. Weeks, whose office will be in Moline, started with the United Light properties as advertising manager in 1924. He was for several years district sales supervisor of the Peoples Power Co., a position which he also held after the reorganization.

• •

S. G. Eskin, director of the Robertshaw Research Laboratory, has received his formal appointment from **Donald M. Nelson** to serve as a "dollar-a-year" man on the War Production Board. Mr. Eskin has been assigned to the Industrial Conservation Section headed by **Lessing Rosenwald** and in the Specifications Branch.

Charles K. Strobel has been appointed assistant director of the Robertshaw Research Laboratory to carry on the comprehensive research program under way. Mr. Strobel became a member of the Robertshaw Thermostat Co.'s research laboratory in September, 1940. He has a broad background of experience, having spent two years in the development laboratory of the Western Electric Co., New York, and nine years in the research laboratory of the Union Switch & Signal Co., Swissvale, Pa. He also spent five years on individual research for Westinghouse E. & M. Co. and University of Pittsburgh.

• •

Election of **George A. Ranney,** chairman, Peoples Gas Light & Coke Co., Chicago, Ill., to the board of trustees of the University of Chicago was announced Nov. 12 by **Harold H. Swift,** chairman of the board.

Mr. Ranney entered the utility field in 1933 when he became vice chairman and director of the Commonwealth Edison Co., Peoples Gas Light & Coke Co., and the Public Service Co. of Northern Illinois. Previously he had been vice president in charge of sales for the International Harvester Co.

• •

G. H. Neilson, Jr., has accepted the position as general superintendent of production and transportation of the Equitable Gas Co., Pittsburgh, Pa.; the Philadelphia Oil Co.; the Finleyville Oil & Gas Co., Pittsburgh, Pa.; and the Pittsburgh and West Virginia Gas Co., Grafton, W. Va.

Mr. Neilson entered the service of the Equitable Gas Co. in 1925 as a cadet engineer. He served as a field engineer from 1926 to 1928, and as a statistic engineer from 1928 to 1931, at which time he was made research engineer, a position he held until 1933 when he became supervisor of system operations. In 1937 he was appointed assistant superintendent of compressing stations and in 1942 was advanced to assistant superintendent of the company's Division "F."

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William Kenneth Twyman has been transferred from Shamrock to Cayuga as district storekeeper for Lone Star Gas Co., Dallas, Texas, and **R. M. Harvey** has been named district storekeeper at Shamrock, according to **Charles F. Wilson,** Lone Star stores supervisor. The change was necessitated when **R. M. Barksdale** resigned as Cayuga storekeeper to enlist in the Army Air Corps as a mechanic.

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Mercedes Bates, formerly home service representative of the Southern California Gas Co. in Hollywood, has been named acting home service supervisor, succeeding **Gladys B. Price,** who has joined the "Waves," according to an announcement by **W. M. Jacobs,** sales superintendent.

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Henry J. Dropp, sales manager of the Milwaukee Gas Light Co., was named county fuel-oil rationing administrator by **Don T. Allen,** Wisconsin director of OPA.

Allan W. Lundstrum, gas operating consultant for Ebasco Service, Inc., New York, is now in Washington where he is associated with the gas production section of the power branch of the War Production Board.

• •

E. L. Mills, vice president of The Bastian-Blessing Co., Chicago, was elected president of the International Acetylene Association at the association's 42nd annual convention held in Cleveland in October. The convention was held at the same time as the Metals Show.

The association is a technical organization for the promotion of safety in use and practices in connection with acetylene welding. With a world-wide membership, it maintains headquarters in New York City. **H. D. Reinhard** is secretary.

E. T. Scheck, L. J. Mueller Furnace Co., Milwaukee, and **M. T. Morthey,** Minneapolis-Honeywell Regulator Co., Minneapolis, were recently appointed on the advisory committee of the plumbing and heating transportation industry of the War Production Board. **E. L. Mills,** vice president, The Bastian-Blessing Co., Chicago.

• •

James Baskin of Cameron, Texas, and formerly chief statistical clerk of the oil and gas division of the Texas Railroad Commission, has been advanced to chief of the division. **Clinton Owsley** has been named to the position of chief statistical clerk. Members of the commission are: **Ernest O. Thompson,** chairman; **Beauford Jester** and **Olin Culberson.**

ON THE JOB FOR OVER *65 Years*

The above prize winning photo is by I. F. Patt of Providence Gas Co.

Back in the days when the telephone was still a curiosity, Connelly Iron Sponge was supplying the purifying needs of the leading gas companies of the East. And, like the telephone, its use has grown with the years until today it is depended upon throughout the country wherever the utmost in purification efficiency is demanded.

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A cake with 50 candles and a 50-year service pin, the first in the company's history, honor **C. F. Adams,** Portland Gas & Coke Co.'s president from 1892 to 1910, president of the board of directors from 1910 to 1933 and still a member of the board. He is also the oldest living ex-president of the Pacific Coast Gas Association, which he headed in 1899. From left: Mr. Adams; **A. W. Lembach,** veteran service man; **Grace Workman,** home service counselor, and **R. G. Barnett,** vice president and general manager. Mr. Adams is also chairman of the board of the First National Bank in Portland.

• •

T. J. Strickler, vice president and general manager of the Kansas City Gas Co., was chairman of the Kansas City War Chest, Inc., which raised $2,078,336 for the war chest and community fund during the third week in October. This is more than $10,000 over the quota and is over twice the amount that has ever been raised before.

• •

H. Carl Wolf, chairman of the committee on national advertising of the American Gas Association, has announced the following appointments to his committee:

D. P. Hartson, vice president and general manager, Equitable Gas Co., Pittsburgh, representing participating companies in western Pennsylvania, Ohio and West Virginia.

Dean H. Mitchell, president, Northern Indiana Public Service Co., Hammond, representing participating companies in Illinois, Iowa, Michigan, Wisconsin, North Dakota, South Dakota, Indiana and Minnesota.

H. P. J. Steinmetz, vice president in charge of sales, Public Service Electric & Gas Co., Newark, representing participating companies in New Jersey.

Fred B. Hofft, vice president, The United Gas Improvement Co., Philadelphia, representing participating companies in eastern Pennsylvania and Delaware.

Mr. Wolf also announced that **Will C. Grant,** advertising director of the Lone Star Gas System, Dallas, has been appointed a member of the national advertising copy committee, succeeding **Willard G. Wiegel,** who has been appointed personnel manager of that company.

• •

William Reynolds of New York has been appointed advertising and public relations manager of the Elastic Stop Nut Corp., Union, N. J., it was announced on Nov. 16 by **Thomas H. Corpe,** general sales manager of the company. Mr. Reynolds was formerly advertising manager of Servel, Inc., and of the New York Queens Electric Light & Power Co. He was in the U. S. naval service during World War 1.

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Accepting a position with the WPB, **P. McDonald Biddison,** consulting engineer for Lone Star Gas Co., Dallas, Texas, closed his office and reported to Washington on Oct. 17. Mr. Biddison, who is well known throughout Lone Star System properties, will be a consultant in the power branch of the gas supply section.

P. M. Biddison

Mr. Biddison has been working largely with valuation of properties and rate cases on natural gas utilities. During World War 1 he served as a consulting engineer on war gases for the U.S. Bureau of Mines and in that capacity conducted a search for helium in natural gas in all fields in the United States. He supervised the construction of two helium plants in North Fort Worth and one in Petrolia.

The new member of the WPB is a graduate of Kansas State College of Agriculture and Applied Science and is a fellow of the American Society of Mechanical Engineers and a member of the American Institute of Mining and Metallurgical Engineers, American Gas Association and the Pacific Coast Gas Association.

• •

Trustees of Consolidated Edison Co. of New York, Inc., Nov. 24 named **Ralph H. Tapscott,** the company's president, as its chief executive officer, thereby succeeding to the responsibilities held by the late **Floyd L. Carlisle. Oscar H. Fogg,** vice chairman of the board, was elected to the newly created post of chairman of the executive committee. The offices of chairman and vice chairman of the board were abolished. The board indicated that in all other respects Mr. Tapscott and Mr. Fogg would perform their respective duties as heretofore.

Similar action was taken by the boards of directors of the other System Companies, of which the late Mr. Carlisle served as chairman, namely, Brooklyn Edison Co., Inc., and New York and Queens Electric Light & Power Co.

Mr. Tapscott was elected president of Consolidated Edison Co. in March, 1937. He attended Union College, from which he was graduated in 1909 with the degree of B. S. in electrical engineering. In October, 1917, Mr. Tapscott became assistant chief electrical engineer of the New York Edison Co., one of the predecessors of Consolidated Edison; in 1925 he was made electrical engineer and seven years later vice president of that company and of the United Electric Light & Power Co. He became vice president of Consolidated Edison Co. in 1936 upon the merger of those companies into the parent company.

Mr. Fogg entered the gas industry with the United Gas Improvement Co. in Philadelphia, where he was born. He came to Consolidated Gas Co. in 1904 in its department of mains and services, and later studied gas utilization in this country and Europe. In 1917 he joined the Army and was placed in command of the construction and maintenance divisions of the ordnance department, A. E. F., with the rank of lieutenant colonel. In 1924 Mr. Fogg was elected vice president of Consolidated Gas Co., in 1935, executive vice president of Consolidated Gas Co., and in 1937 vice chairman of the board of Consolidated Edison Co.

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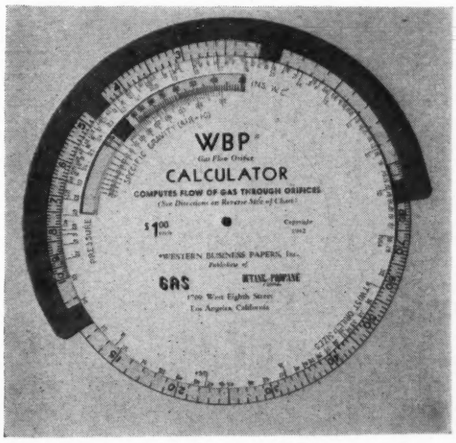

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How Calculator Operates

To Find Drill Size

1. Rotate movable dial until specific gravity coincides with gas pressure.
2. Rotate movable segment until proper orifice coefficient coincides with desired gas quantity (cu. ft. per hr.). If orifice coefficient is not known, use 0.8.
3. Read drill size on movable dial opposite the arrow (0.8) on the orifice coefficient scale of movable segment.

To Find Cubic Feet Per Hour From B. t. u. Per Hour

1. Rotate movable segment until heating value of gas (B. t. u. per cu. ft.) coincides with gas quantity in thousands of B. t. u. per hour on quantity scale.
2. Read gas quantity in cu. ft. per hour against 1.0 (orifice coefficient scale).

To Find Quantity (Cu. ft. Per Hour) for Given Drill Size

1. Rotate movable dial until specific gravity coincides with gas pressure.
2. Rotate movable segment until arrow (0.8) on the orifice coefficient scale is opposite appropriate drill size.
3. Read quantity (cu. ft. per hr.) against appropriate orifice coefficient. If orifice coefficient is not known, use 0.8.

To Find B. t. u. Per Hour Given Cubic Feet Per Hour

1. Rotate movable segment until 1.0 on the orifice coefficient scale coincides with the gas quantity in cu. ft. per hour.
2. Read corresponding B. t. u. per hour in thousands against appropriate heating value (B. t. u. per cu. ft.).

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To The Armed Forces

A. S. Johnson

C. H. Zachry

Lieut. Col. Albert Sidney Johnson, president, Southern Union Gas Co., Dallas, Texas, has been called to active duty with the Army and is stationed with the Sixth Armored Division Headquarters in Southern California. The board of directors of the company at a recent meeting elected **C. H. Zachry** executive vice president and therefore senior officer of the company in the absence of Mr. Johnson. Mr. Zachry has previously held the title of vice president and treasurer, a position he has held since 1933. He will continue his duties as treasurer.

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Webster A. Jones, advertising department, Portland Gas & Coke Co., Portland, Ore., has been commissioned a lieutenant in the U. S. Navy. His work will probably be in connection with procurement.

Franklin R. Fetherston, who for the past 15 years has served as secretary and treasurer of Compressed Gas Manufacturers Association, Inc., and its affiliate, Liquefied Petroleum Gas Association, Inc., has been granted a leave of absence to assume active duty with the United States Army.

Maj. Fetherston has been assigned to the Resources Division, Service of Supply, at Washington, D. C.

During World War I he entered the service in the enlisted ranks and was subsequently commissioned a lieutenant of field artillery, retaining a commission in the Field Artillery Reserve Corps until 1934.

During Maj. Fetherston's absence, **Florence Jacob** has been made acting secretary and acting treasurer of both Compressed Gas Manufacturers Association and the Liquefied Petroleum Gas Association.

• •

Commissioned as a major in the Army Engineer Corps, **John J. Winn, Jr.,** has left his position as commercial manager of Portland Gas & Coke Co., Portland, Ore., for the duration of the war.

He received his engineering schooling at Massachusetts Institute of Technology and Johns Hopkins University and has served both gas and electric utility companies during the past 28 years.

• •

Commissioned as a first lieutenant in the United States Army Engineers Corps, **C. A. Nash,** sales promotion manager of the United Light & Power Service Co., Davenport, Iowa, is now stationed in Omaha, Neb. Lieut. Nash has been associated with the gas industry for over 25 years and plans to return to it after the war.

Gladys Price, home service director, Southern California Gas Co., Los Angeles, Calif., and one of the best known members of her profession, is shown receiving her commission as a lieutenant (j. g.) in the "Waves," Women's Naval Reserve, from **Lieut. Frances E. Shoup** at the Los Angeles Naval Armory.

Miss Price, who is the first woman member of Southern California Gas Co. to join the "Waves," left Nov. 4 for Smith College, Northampton, Mass., where she will be given instruction in naval organization, etc.

Gladys Price is a graduate of Oregon State College with a degree in home economics, and before joining Southern California Gas in 1933 she served as home service director in the Central Arizona Light & Power Co. She has been active for a number of years in home service work of the American Gas Association and Pacific Coast Gas Association.

• •

A. R. Bailey, assistant to the president, Coast Counties Gas & Electric Co., San Francisco, Calif., has been appointed a major in the Army and left the gas industry for the duration to report for duty on Nov. 9. Mr. Bailey will be headquartered at the San Francisco port of embarkation at Fort Mason and will function as personnel officer in the various ports of embarkation and staging camps under Fort Mason command.

• •

Reorganization Plan for Jacksonville Gas Approved

Under an order issued by Federal Judge Louis W. Strum on Oct. 14, the Jacksonville Gas Co., Jacksonville, Fla., will be reorganized under the name of "Jacksonville Gas Corp."

By the terms of the order the new corporation will absorb all liabilities of the present company, save the currently outstanding first mortgage bonds, income debentures and income notes of the company. The Jacksonville Gas Co. will retain and continue possession of all property and assets of the present concern, to manage and operate the business as usual and to effect the organization of the achievement and appearance.

■ ■

House Organ Wins Award

At the annual convention of the Southwestern Association of Industrial Editors held in Stillwater, Okla., Oct. 8-10, recognition was given *Burner Tips,* publication of Houston Natural Gas Corp., Houston, Texas, when it was voted the 1942 award for editorial achievement and appearance.

Payne FURNACE & SUPPLY CO., INC., BEVERLY HILLS, CALIFORNIA

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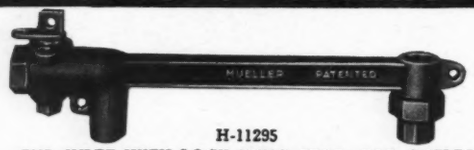

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Twelve Gas Companies Win Awards In National Safety Contest

TWELVE gas companies were among those to receive awards in the public utilities 15th annual safety contest sponsored by the National Safety Council, Inc., for the period of July 1, 1941, to June 30, 1942. In all 183 companies competed.

Honorable mention certificates were awarded to the Columbia Gas & Electric Corp., Wilmington, Del., for 986,464 continuous injury-free man-hours; Oklahoma Natural Gas Co., Oklahoma City, Okla., for 579,644 continuous injury-free man-hours; and Peoples Gas Co. for 149,980 continuous injury-free man-hours.

In the large gas group winners in order of merit were: The Peoples Natural Gas Co., Pittsburgh, Pa.; Columbia Gas & Electric Corp., Columbus Group; and Hope Natural Gas Co., Clarksburg, W. Va.

For the fifth time the Dallas Gas Co., Dallas, Texas, has scored the best accident record among gas companies comparable in size throughout the country with the creditable showing of 1,235,206 working hours from July 1, 1941, to June, 1942, with only four disabling accidents. Other companies to win awards in this same middle-sized group included the Pittsburgh & West Virginia Gas Co., Pittsburgh, Pa., and the St. Louis County Gas Co., St. Louis, Mo.

Winners in the small gas group included the Canadian River Gas Co., Amarillo, Texas; Lone Star Gas Co., Fort Worth, Texas; and Brocton Gas Light Co., Brocton, Mass.

■ ■

Lone Star Gas System to Be Reorganized With Two Operating Companies by SEC

Lone Star Gas System, Dallas, Texas, is to be reorganized, according to a plan submitted last February and approved in October by the Securities and Exchange Commission. The system, which now contains six operating companies, will be reduced to two, Lone Star Gas Co. and Lone Star Gas Producing Co. The change will take effect on or about Dec. 31.

Lone Star Gas Co. will engage primarily in the purchase, transmission and distribution of natural gas in Texas and Oklahoma but it will no longer engage in the drilling of wells or the production of natural gas. This phase of the business will be conducted by the Lone Star Producing Co., which will produce natural gas and natural gasoline and from which Lone Star Gas Co. will obtain its major supplies of gas for distribution.

Under the plan approved and agreed to by the company, the distribution properties in El Paso and Galveston, Texas, and Council Bluffs, Iowa, will be disposed of within a reasonable time.

Lone Star Gas Corp. will also dispose of its 30% interest in the Northern Natural Gas Co., which transports gas from the Texas Panhandle and other fields to Minneapolis and St. Paul, Minn., and certain towns en route. The present holding company, Lone Star Gas Corp., will be dissolved.

■ ■

500 Army Theaters Fitted With Ventilating Controls

That the United States Army has become the nation's leading operator of motion picture theaters was revealed when John E. Haines, official of the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., stated that his company had supplied heating and ventilating controls for more than 500 theaters built on domestic Army bases.

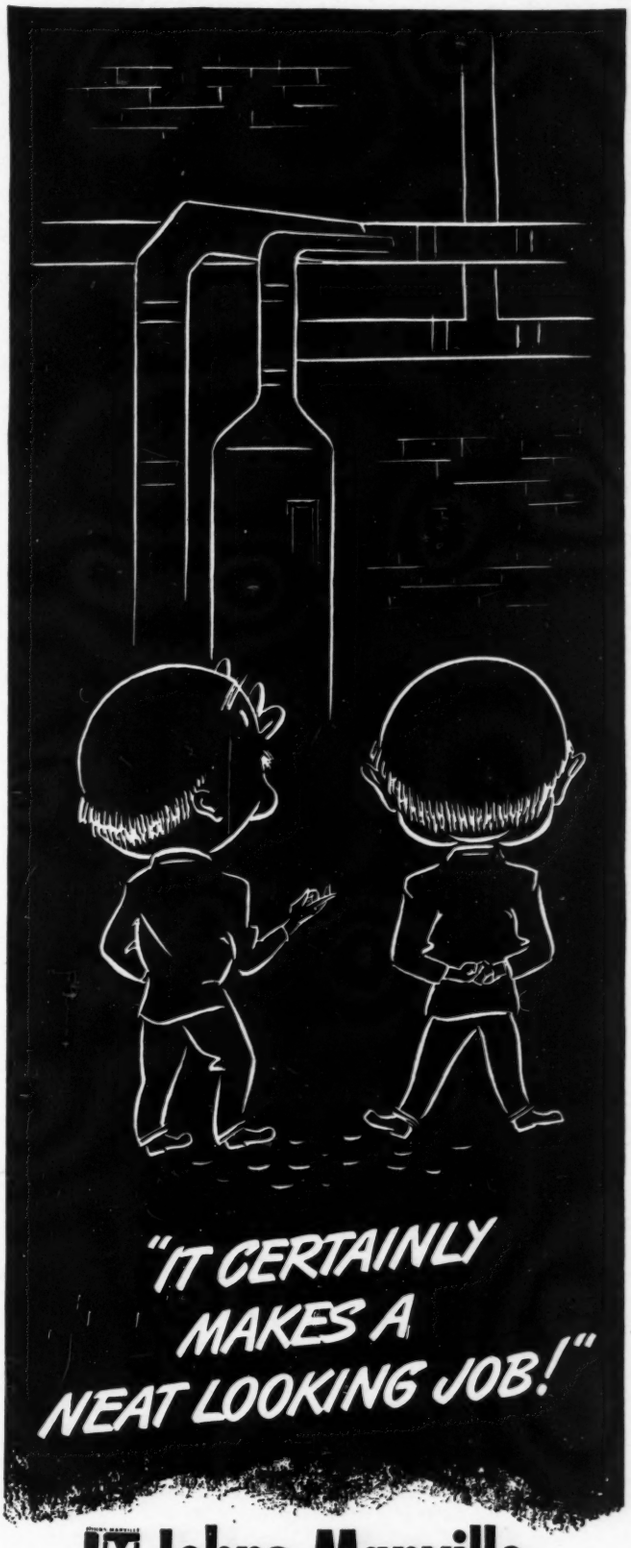
The theaters seat from 600 to 1000 soldiers each and are heated and ventilated with standard equipment. The automatic controls are identical to those used in civilian theaters and other space-heated buildings. Although orders for the devices were received in small groups, their dollar volume represents some of the largest business of the air conditioning controls division of the company in recent years, according to Mr. Haines, who is manager of this division.

Scope and speed of the Army's theater program is best indicated by the story of the company's salesman in Texas, who, on learning of the award of a contract to a local builder, asked to bid on the automatic controls. According to this official, the contractor refused to give the order until he had contracts for an even dozen theaters. Two weeks later the salesman was asked to ship 12 complete sets of controls to Army cantonments in Texas.

■ ■

Cathodic Protection Units Installed

Northern Natural Gas Co., Omaha, Neb., has recently placed in service on its pipe line system two new electric cathodic protection units. One unit was installed south of Beatrice, Neb., another north of Clifton, Kan., on the 24-in. main line. The units are Jacobs 5000-watt gas engine driven generators. Northern Natural has 10 gas engine driven generators and 12 windmill driven units in service on its 3300 miles of main and branch lines.



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Kitson "Defender" Emergency Shut-off Gas Valve

Type IHF

This Kitson Type IHF Valve anticipates trouble; guards against possible "sticky" thermostats; gives positive protection until the fault is remedied. It's specified by many leading gas companies as standard equipment—is A.G.A. approved. ASK ABOUT IT; WRITE TODAY.

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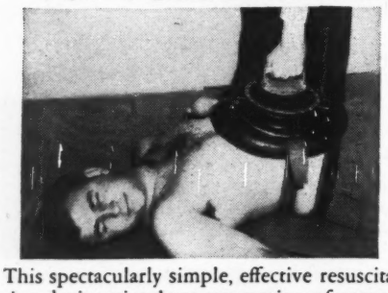
RUBBER LUNG
—for resuscitation



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NATIONWIDE SALES AND STOCKS

Obituaries

Floyd L. Carlisle

Floyd L. Carlisle, chairman of the board of Consolidated Edison Co. of New York, Inc., and of Niagara Hudson Power Corp., died suddenly Nov. 9.

Mr. Carlisle was born in Watertown, N. Y., on March 5, 1881. In 1903 he graduated from Cornell University, where he studied law. He was admitted to the New York State Bar in 1905 and his first business venture was the organization of the Northern New York Trust Co. at Watertown. He served as president of this bank from the time of its organization in 1910 until 1922.

He entered the public utility field in 1920, heading a syndicate which bought the Northern New York Utilities, Inc., the largest public utility operating company in the northern New York region, and became the chairman of the board of directors.

In 1926, under Mr. Carlisle's direction, the Northeastern Power Corp. was organized. This company took over control of the Northern New York power properties and in addition acquired a substantial interest in the New England Power Association and Mohawk Hudson Power Corp. In 1928 the Northeastern holdings in New England Power Association were sold and Mr. Carlisle relinquished his position as chairman of the board of directors of that company.

His first connection with the Consolidated Edison group came with his election as a director of the New York Edison Co. in May, 1930. In February, 1931, he was made chairman of the board of directors of New York Edison. In May, 1930, he was elected a trustee and in February, 1932, chairman of the board of Consolidated Gas Co. of New York, which later became the present Consolidated Edison Co. of New York.

■ ■

William J. Hinchey

William J. Hinchey, vice president and general manager of the Kentucky Natural Gas Corp., Owensboro, Ky., and superintendent of the Gas Service Co., Kansas City, Mo., from 1927 to 1929, died at his home in Owensboro on November 1 at the age of 62.

Coming from a family that had long been associated with the gas business, Mr. Hinchey started his career in the industry in 1898 with the Commercial Gas Co. at Bradford, Pa. Eight years later he was transferred to the United Natural Gas Pipe Line Co., Bradford, where he did pipe line and compressor station construction work for two years.

In 1908 he accepted a position with the Kansas Natural Gas Co., Independence, Kan., as chief inspector of pipe lines and distribution systems, and when that company was taken over by Cities Service Co., Mr. Hinchey remained as chief inspector of all the properties in the Kansas City district until 1922. In that year he joined the Union Public Service Co. as general superintendent of the company's 28 natural gas distributing properties in Kansas, Missouri and Oklahoma.

From 1923 to 1929 Mr. Hinchey served as general superintendent over all the distribution properties of the Gas Service Co., under which management the Union Public Service Co. was operated. For the past 13 years he has been vice president and general manager of the Kentucky Natural Gas Co., of later years known as the Kentucky Natural Gas Corp.

Francis H. Payne

Francis Hervey Payne, 75, president of American Meter Co. and manager of the corporation's Metric Metal Works plant at Erie, Pa., died suddenly on Nov. 10 while attending the monthly meeting of the Men's Club at St. Paul's Church, Erie, Pa.

Francis H. Payne

Mr. Payne was born April, 1, 1868, at Petroleum Center, Venango County, Pa., where his father, the late Calvin N. Payne, was engaged in drilling for oil and built the first natural gas pipe line in America.

Francis Payne was a graduate of the Titusville High School, the Hill School of Pottstown, Pa., and of Princeton University, class of 1891.

His advent in the gas meter business was in July, 1891, when he became secretary and manager of the Metric Metal Co., then at Beaver Falls, Pa. Mr. Payne enjoyed an unbroken record of almost 52 years as manager of this important operating factory, which became a part of American Meter Co. when that company was organized in 1895.

He was a director of this corporation for many years prior to his election as vice president in 1923, and as president in June, 1936.

At the time of his death Mr. Payne was a director of the American Gas Association, the Erie Chamber of Commerce, and the Erie County Health and Tuberculosis Association, and president of the Board of Library Trustees, Erie, Pa.

■ ■

Bennett B. Bristol

Bennet B. Bristol, who with his brother, Edgar H. Bristol, founded the Industrial Instrument Co. in 1908, which later became the Foxboro Co., died at his summer home at Falmouth Heights, Mass., Nov. 10 following several months' rest from a heart attack suffered last May. Mr. Bristol was born in Naugatuck, Conn., May 3, 1868. In 1893 he was graduated, M. E., from the Stevens Institute of Technology. Throughout the history of the Foxboro Co. he served as its treasurer and clerk. He was president of the Foxboro National Bank, a director of the Citizens and Manufacturers National Bank of Waterbury, Conn., and chairman of the board of trustees of the Foxboro State Hospital.

■ ■

Ernest Herbert Reed

Ernest Herbert Reed, president and owner of Republic Heater Corp., Huntington Park, Calif., passed away suddenly on Nov. 5 in Washington, D. C. He was apparently in good health when he left on a business trip to the capital, but after arrival in the East he collapsed and died.

Born in Montreal, Canada, 52 years ago, Mr. Reed came to California in 1926 and set up a novelty toy business. Fifteen years ago he entered the water heater business and had been president of the Republic Heater Corp. since that time. His son, Whitney Reed, is vice president of the company.

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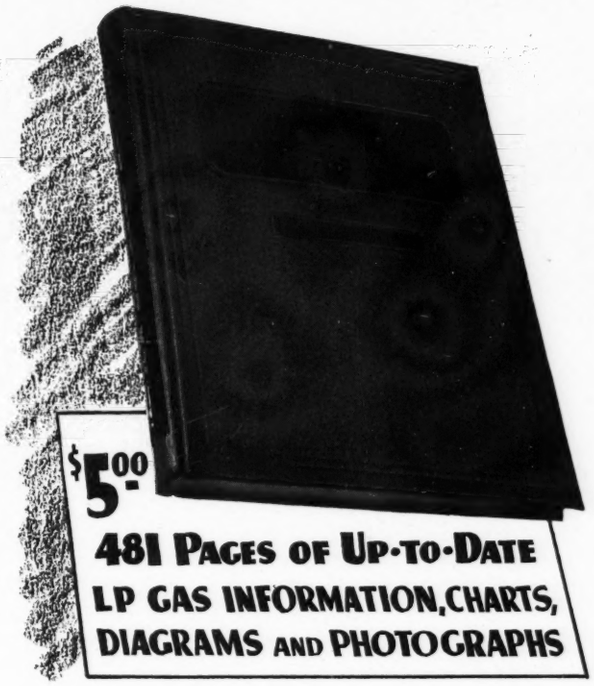

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CHECK THE NEW CONTENTS

PART 1. INTRODUCTION
Chapter 1: The Progress of the Industry and the History of Its Development.
Chapter 2: The ABC of LP-Gas, an Introduction to LP-Gas Operations.

PART 2. PHYSICAL AND CHEMICAL PROPERTIES
Chapter 1: Properties of the Hydrocarbons in LP-Gas.
Chapter 2: Properties of Butane-Propane Mixtures.
Chapter 3: Volume Correction Factors.
Chapter 4: Analytical Determination and Testing.

PART 3. PRODUCTION OF LP-GAS
Chapter 1: Natural Gasoline Plants, Recycling Plants, Oil Refineries.

PART 4. TRANSPORTATION AND STORAGE
Chapter 1: Delivery by Truck, Rail, Water, and Pipe Line.
Chapter 2: Storage Tank and Pressure Vessel Design.
Chapter 3: Liquid Metering and Pumping Systems.

PART 5. DISTRIBUTION OF LP-GAS
Chapter 1: Installing and Servicing LP-Gas Systems.
Chapter 2: Semi-Bulk Systems.
Chapter 3: Bottled Gas Systems.
Chapter 4: Gas Utility Service From Central Plants.
Chapter 5: Multiple Utility Service From a Central Plant.

PART 6. UTILIZATION OF LP-GAS
Chapter 1: Comparative Performance With Other Fuels.
Chapter 2: Appliance Installation and Testing.
Chapter 3: Domestic Applications.
Chapter 4: Commercial Applications.
Chapter 5: Industrial Applications.
Chapter 6: Enrichment, Peak Load and Standby Uses.
Chapter 7: A Fuel for Internal Combustion Engines.

PART 7. REGULATIONS
Section 1: N. B. F. U. Pamphlet No. 58.
Section 2: Motor Carrier Regulations.
Section 3: Freight Regulations.
Section 4: Unloading Tank Cars.
Section 5: Marine Regulations.

PART 8. APPENDIX
Section 1: Products Liability Insurance.
Section 2. Handy Tables for Field Use.
Section 3: Bibliography.
Section 4: Glossary of Terms.

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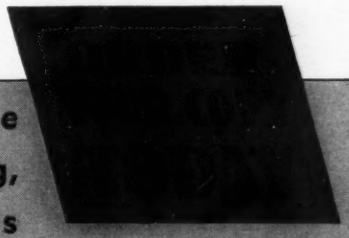

The Only Complete and Authoritative Reference Book on LP-Gas Engineering, Installation and Operating Methods

Petition for Rehearing Of Rate Case Denied

Contending that no new facts have been presented, the Federal Power Commission announced Nov. 4 its denial of petitions filed on Oct. 23, 1942, by Panhandle Eastern Pipe Line Co. and its affiliates, Michigan Gas Transmission Corp. and Illinois Natural Gas Co., all having main offices in Kansas City, Mo., for a rehearing of the Commission's Sept. 23 order reducing the companies' wholesale rates and charges for natural gas by not less than $5,094,384 annually. The Commission's order directed that an interim rate reduction be made in the companies' rates and charges for the sale of natural gas in interstate commerce for resale for ultimate public consumption.

Earlier the Commission had announced an order extending from Oct. 15 to Nov. 10 the time within which Panhandle and its affiliates must file new schedules of rates and charges to reflect the required reduction (*GAS*, Nov., 1942, p. 62.)

GEORGE A. BURRELL

Consulting
Gas Engineer

■

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New York City

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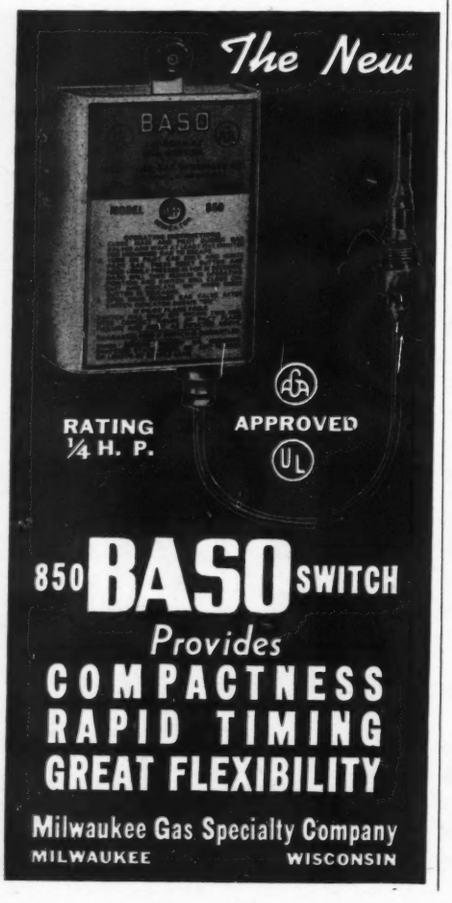
Pittsburgh, Pa.



A former service truck is brought out of retirement anl converted to War Bond deliveries with plywood and paint. Body is red, white, and blue. The Minuteman is green.

A High B. T. U. Bond Sales Campaign

THE same sales plan that sold automatic gas water heaters and heating equipment can be used to sell War Bonds!

Edward H. Coe, president of the Central Arizona Light & Power Co., Phoenix, Ariz., instructed his promotional staff to develop a campaign complete with advertising, employee participation and trimmings. Instructions were to sell War Bonds, not to wait for customers to come in and ask for them.

An employee sales program was worked out with full support from an advertising program and a Minute Man War Bond delivery truck, and sold a total of $250,000 in War Bonds during the first 90 days!

Employees were given "order books" of the same pattern used to get appliance prospects. The order requested delivery of War Bonds in required amounts. Orders were turned in and delivered by a War Bond office on wheels. This consisted of a gaily painted red, white and blue truck driven by an armed uniformed guard and staffed by a uniformed girl equipped with a typewriter and an ample supply of War Bonds. The transaction was completed on the prospect's dining room table, out in the yard, or on a meat case or cashier's counter.

Of the company's 418 employees, 294 sold one or more War Bonds.

High sales were made by a district serviceman who sold $23,800 in War Bonds on 107 individual sales.

A telephone operator used her pleasant voice to sell $20,800 in War Bonds on 86 individual sales.

The company shunned taking on payroll allotments from other businesses because such figures would swell totals as diversion and not "new business." Totals do not include $23,700 from company employee allotment plan.

The War Bond delivery truck has made it possible for civic groups to organize War Bond drives wherein individual members take orders for War Bonds, turning them over to the company so that the truck can make delivery and avoid mistakes on the application form.

The company's experience has been that commitments to purchase War Bonds are good, and as yet has reported no "hedging."

Officials of the Central Arizona Light & Power Co. say they intend to continue the War Bond delivery truck idea as long as it serves a useful purpose and does not conflict with subsequent rationing programs.

■ ■

Plan to Take Additional Gas From California Field

Southern Counties Gas Co., Los Angeles, Calif., made application early in November to the WPB for permission to construct facilities necessary to take an additional 8,000,000 cu. ft. of gas daily from the Santa Maria field in Santa Barbara County, Calif.

WPB approval of the project, which is being undertaken jointly with the Union Oil Co. and Southern Counties at an estimated cost of $500,000, will make it possible for the latter company to take 15,000,000 cu. ft. daily from this field, according to Fred Hough, executive engineer.

In addition to meters, dehydration plants and line replacements it will be necessary to construct a 10-in. line, 2.3 mi. long from a new gasoline plant to be erected by the Union Oil Co. in the Santa Maria field to the junction of Southern Counties excess line, before the new gas supply can be utilized.

Now AMERICA CASHES IN ON THE PETROLEUM INDUSTRY'S RESEARCH BACKLOG

TIRELESSLY and unobtrusively, brilliant engineers and scientists employed by America's oil producers have for years carried on exhaustive industry research. Their investigations and perfected developments have meant much to the happiness not only of Americans, but of all peoples of the world.

Those working for this gigantic competitive oil industry research foundation have always made new processes and products available in an orderly manner. Pearl Harbor changed that procedure. Innumerable products and developments intended for use on America's peace front were immediately placed "en masse" at the command of our fighting forces. Thus America's war front gained their immediate advantages.

At sea, on land and in the air, the forces of the United Nations are cashing in on a tremendous backlog of experimentation and scientific study. Literally five years of work has been accomplished "overnight" since Pearl Harbor.

From Petroleum's vast and varied production comes materiel for the destruction of America's enemies. Longer-lasting lubricants, "block-busting explosives," high octane aviation fuels, petrochemical rubber, and an endless variety of petroleum base synthetics are included in the industry's contribution to the war effort.

As designers, engineers and constructors to the oil, gas and allied industries, The Fluor Corporation is proud to play its part in the tremendous progress of a great industry.

Fluor is helping the Petroleum Industry's program by designing and constructing synthetic rubber, toluene, aviation gasoline, alkylation, isomerization, recycling, natural gasoline and gas transmission plants and petroleum refineries.

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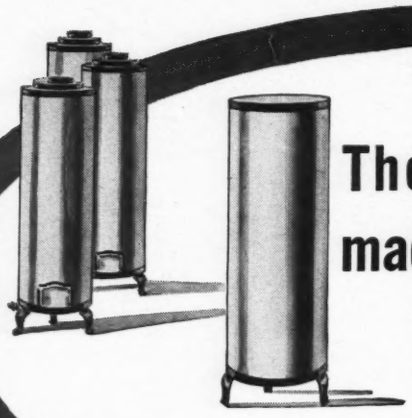
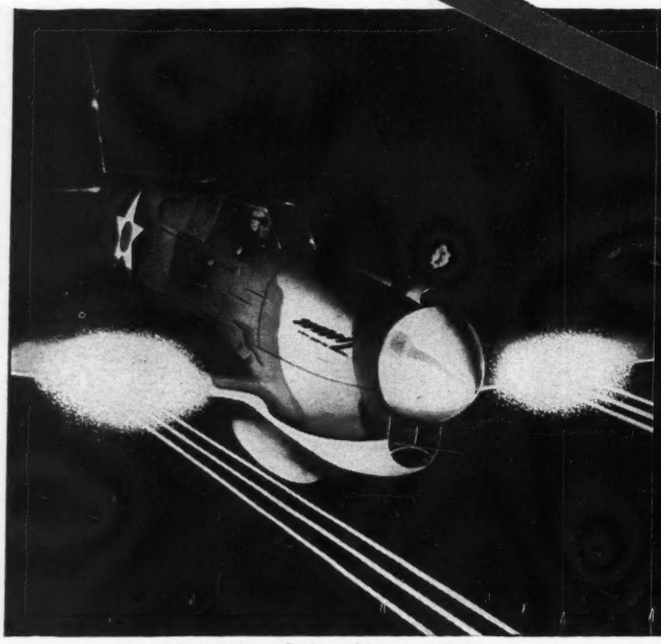
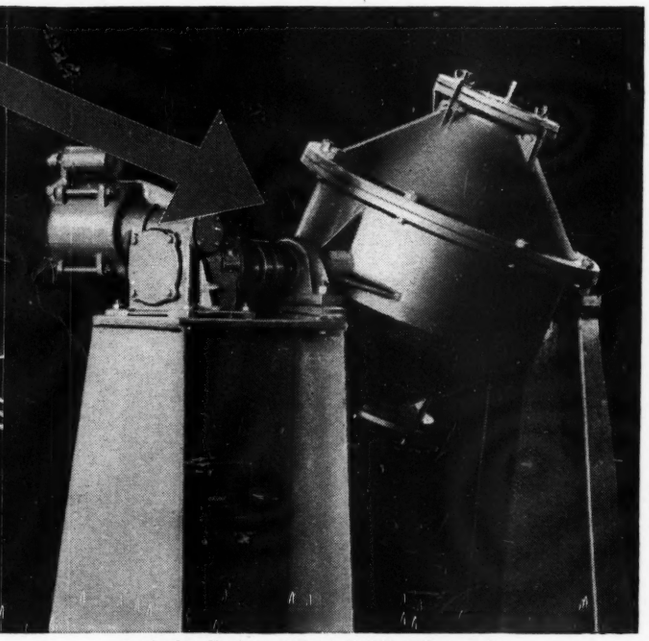


The metal that might have made these *Everdur* tanks...

Instead makes these *Everdur* blenders for mixing tracer bullet powder



Curtiss Kittyhawk (P-40 series) firing tracer bullets



Everdur Cone Blenders made by the H. K. Porter Company, Inc.

EVERDUR* gets the call for this and many other vital war tasks for the same basic reasons that made this copper-silicon alloy so desirable for the construction of hot water tanks.

It is strong, rustproof and highly resistant to corrosion... it has a high endurance strength, fights fatigue... it is readily welded and ideally suited to engineering construction involving both wrought and cast parts.

These are some of the reasons why Everdur Metal is in such great demand today. 4266

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the first "V-Angle" design . . . introduced in 1931

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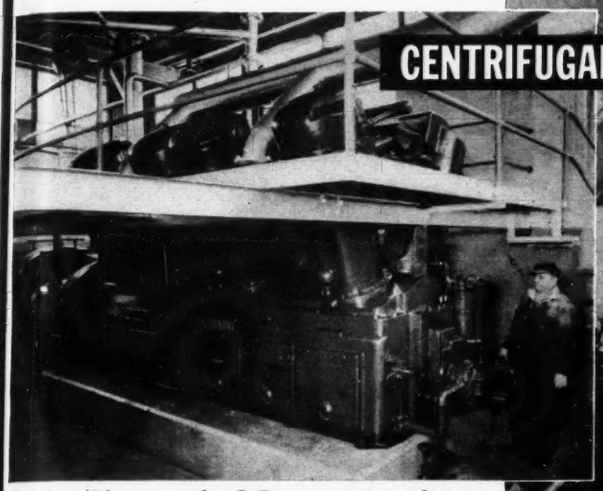
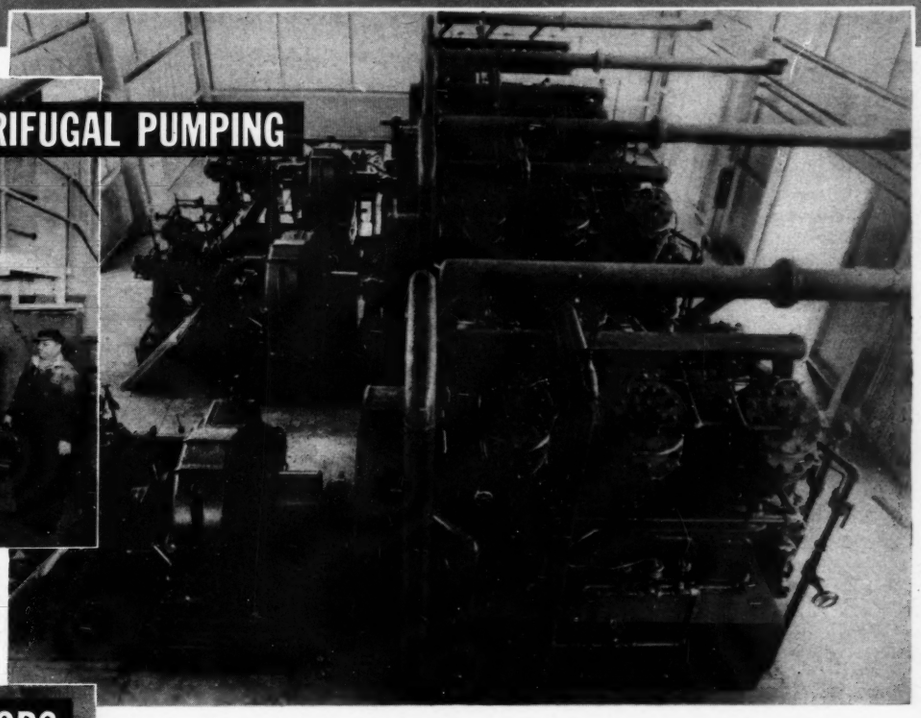
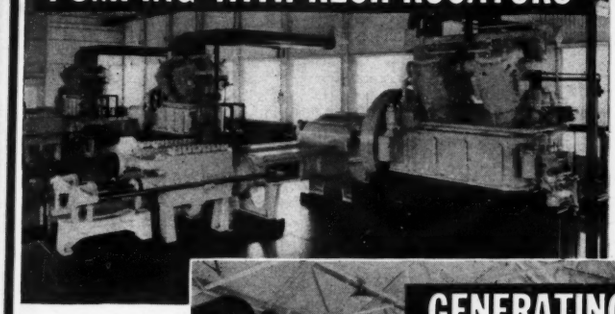


CENTRIFUGAL PUMPING



Right: Three 275-hp I-R gas engines driving Ingersoll-Rand centrifugal pipe-line pumps through speed-up gears. Above: 650-hp gas engine direct-connected to I-R centrifugal single-stage pump.

PUMPING WITH RECIPROCATORS



Three 185-hp gas engines geared to reciprocating pumps.

In designing the VG lines of 4-cycle gas-engine units, Ingersoll-Rand engineers made sure that every one would have the stamina, reserve, flexibility, simplicity, and accessibility to meet the severe demands of the oil industry. That they have done their job well is evidenced by the hundreds of such units now in all kinds of refinery and oil-field service...in all parts of the world. Here are some typical examples of the variety of services.

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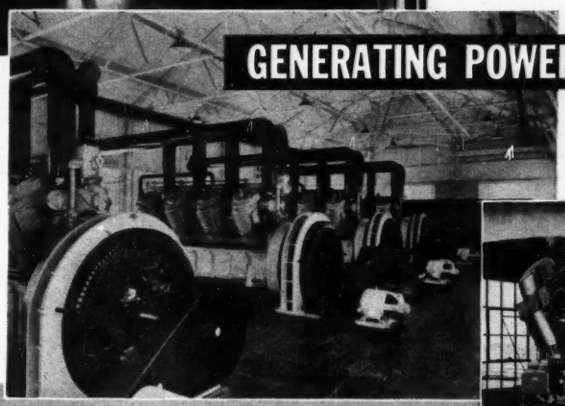
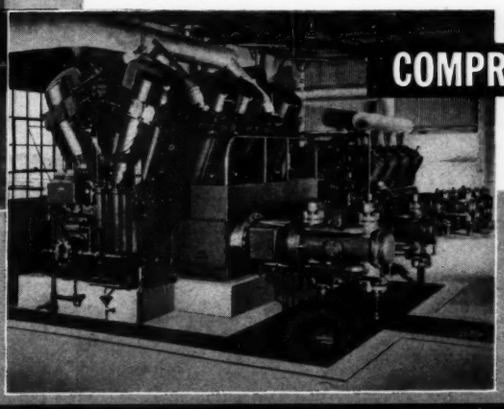


Three 370-hp gas-engine generator units.

COMPRESSING GAS



650- and 300-hp gas-engine compressor units in recycling service.

SIZES OF INGERSOLL-RAND 4-CYCLES

GAS ENGINES—185 to 800 hp
GAS-DRIVEN COMPRESSORS—75 to 800 hp
DIESEL ENGINES—225 to 600 hp
DIESEL-DRIVEN COMPRESSOR UNITS—65 to 275 hp

Pumps • Compressors • Blowers
Condensers • Steam Jets • Rock Drills
Pneumatic Tools

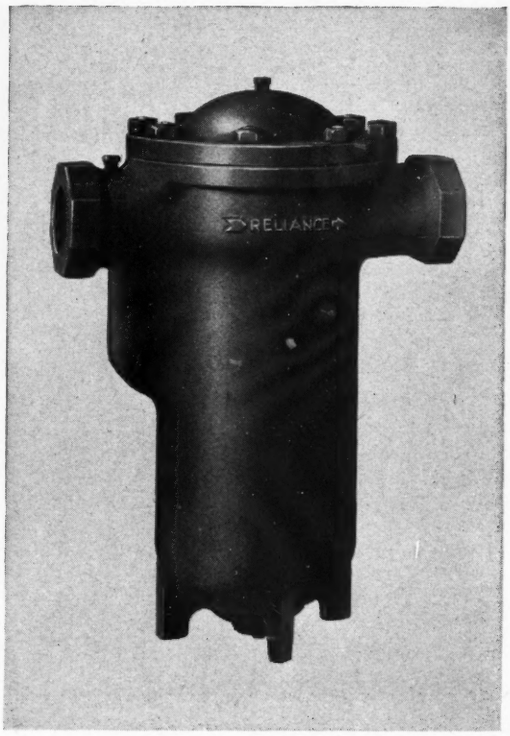
Ingersoll-Rand

11 BROADWAY, NEW YORK, N. Y.

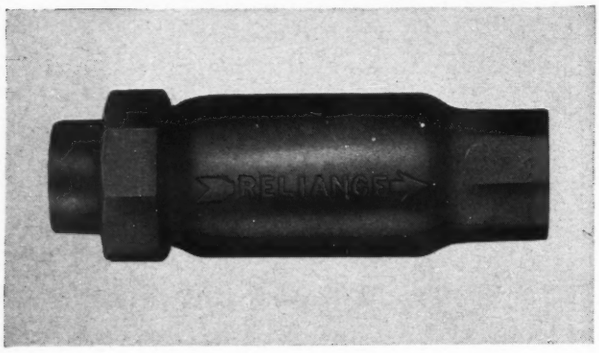
6-41

RELIANCE FILTERS

FOR EFFICIENT DUST CONTROL IN GAS PIPE LINES



TYPE "B" FILTER



Reliance Type "B" Filters are designed for use on house service lines in dust areas of the distribution system.

The Type "B" Filter is available with ¾" or 1" standard pipe connections, with union at one end.

Reliance Type "B" Filters provide efficient service in cleaning from 50 to 240 cubic feet of gas per hour. They are built to withstand working pressures of 150 P.S.I.

Installation of this "B" Filter may be made in a horizontal or vertical position.

TYPE "C" FILTER

Built for the big job of keeping distribution and industrial lines clean. Extra large filtering area is provided by nine filtering elements, each 1⅜" outside diameter. Elements can be quickly removed for cleaning or replacement. Made in 1½" and 2" standard screwed pipe sizes and 2" flanged type series 30 only.

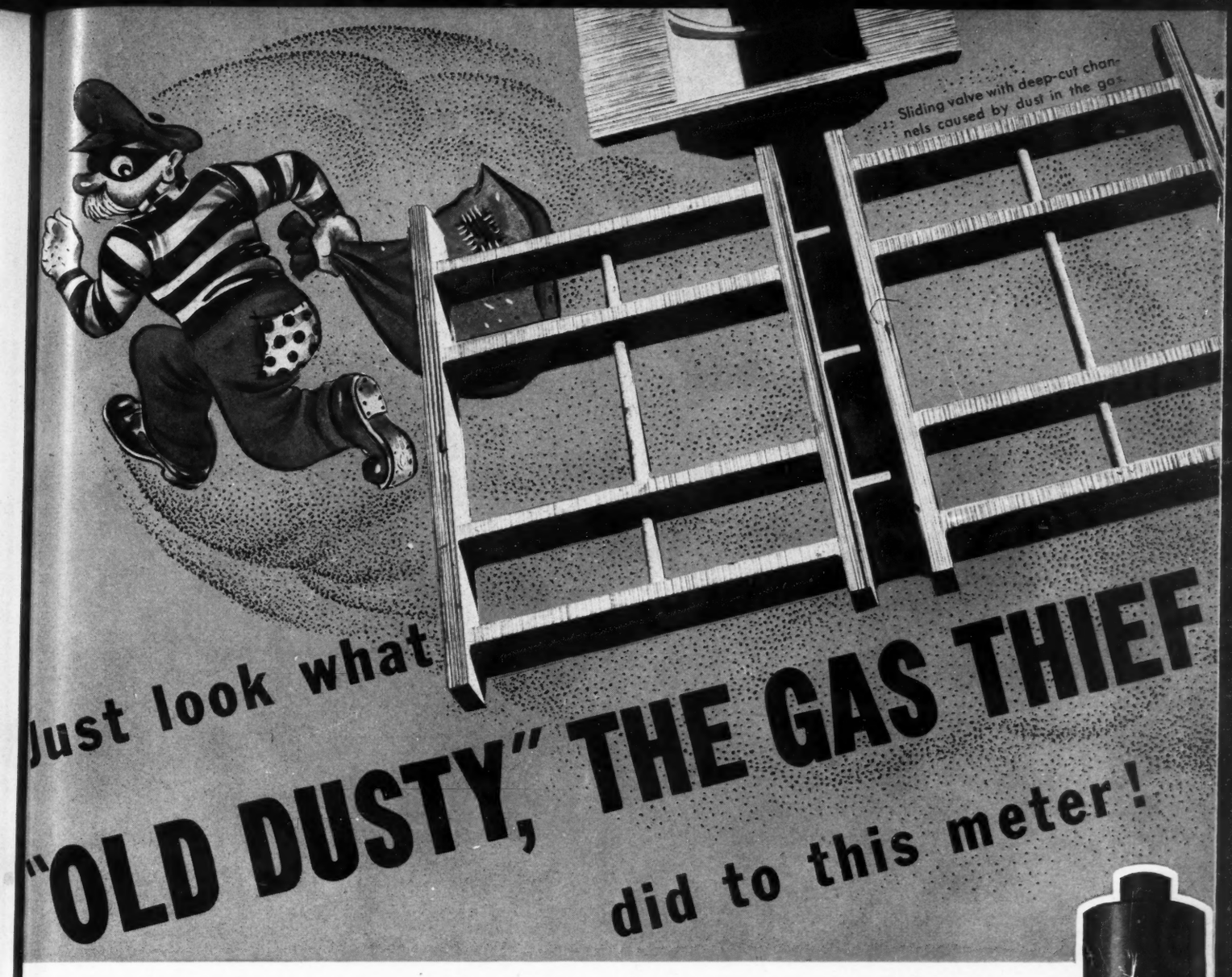
Inlet pressures may range from 8" w.c. to 150 pounds per square inch, with differential pressures of from 0.5 to 27.7 inches w.c. Within these differential limits the 1½" Filter has a capacity of from 1120 to 21,000 cubic feet per hour, and the 2" from 1750 to 28,600 cubic feet per hour.

Write for Bulletin 35-B

AMERICAN METER COMPANY

RELIANCE REGULATORS

RELIANCE REGULATOR CORPORATION
1000 MERIDIAN AVENUE, ALHAMBRA, CALIFORNIA



Just look what "OLD DUSTY," THE GAS THIEF did to this meter!

When new this slide valve worked perfectly on a smooth and tight seat. Mr. Dustan Abrasion—"Old Dusty" attacked it, made channels and scores that not only cause gas leakage, but also increase friction, giving slow and inaccurate measure . . . losing money every day.

That's one way the dust entrained in gas steals your gas. It increases pressure below the regulating valves by destroying contact surfaces; it erodes and rounds the openings in orifice meters so they indicate less gas than actually flows through.

The remedy? Blaw-Knox Gas Conditioning Equipment! It's your best possible insurance against gas loss (money loss) due to dust eroded equipment . . . and it's your best preventer of pilot outages and similar service complaints.

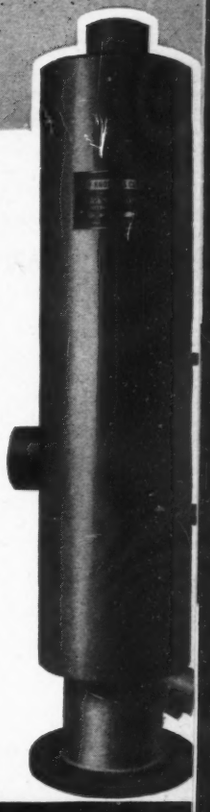
NEW LOW-COST PROTECTION AGAINST DUST, RUST, SCALE AND LIQUID CONDENSATES....

BLAW-KNOX "K" SERIES GAS CLEANERS as low as $95

Available from stock in two sizes and three weights. Compact, inexpensive, easy to install. Insure final gas conditioning near point of use, in front of good customer's meters, at district regulator stations, small city gate stations, etc.

ASK FOR COMPLETE INFORMATION REGARDING THE "K" SERIES GAS CLEANER BEST SUITED TO YOUR PURPOSE. Please state where it is to be placed, the maximum gas volume MCF hour, the minimum and maximum pressure.

This line has been cut to blow out accumulated dust. Imagine what happens when this dust goes through valves and meters.



BLAW-KNOX GAS CLEANERS

BLAW-KNOX DIVISION of Blaw-Knox Company • FARMERS BANK BLDG., PITTSBURGH,

As Easy to Specify as They Are to Install

DRESSER COUPLINGS SIMPLIFY BOTH PIPE AND JOINT SPECIFICATIONS

Advantage No. 5 of 12 Proved Advantages Listed in Box below

CHECK THESE 12 PROVED ADVANTAGES THAT ONLY DRESSERS GIVE YOU

1. Dresser Couplings eliminate all uncertainty in joint-making.
2. Dresser Couplings permit use of local, untrained labor.
3. Dresser Couplings provide the only time-proved method of absorbing expansion and contraction.
4. Dresser Couplings give greater speed.
5. ✓ Dresser Couplings simplify both pipe and joint specifications.
6. Dresser Couplings can be installed regardless of weather, wind, or rain conditions.
7. Dresser Couplings eliminate "fussy" operations.
8. Dresser Couplings permit pipe deflection for curves and grades with straight pipe.
9. Dresser Couplings reduce cost of supervision and inspection.
10. Dresser Couplings cut maintenance costs.
11. Dresser Couplings are fool-proof, strong, *permanently* tight.
12. Dresser Couplings eliminate health and fire hazards

Dresser Couplings not only save time *during* pipe-line construction, but also *before* construction! Dressers simplify specifications amazingly. Special preparation of pipe-ends, extra parts for the pipe, special requirements for jointing procedure, coupon testing, "follow-up" instructions, etc., are all eliminated. Instead, the short, concise statement, "Plain-end pipe with Dresser Couplings," just about takes care of the entire matter. A short paragraph against pages of detailed specifications.

When your next pipe-line project is in the specification stage, prepare for fast action. Specify Dresser Couplings.

Dresser Manufacturing Company · Bradford, Pa.

DRESSER PIPE COUPLINGS

SAVE LABOR · SAVE TIME · SAVE WORRY—WITH DRESSERS

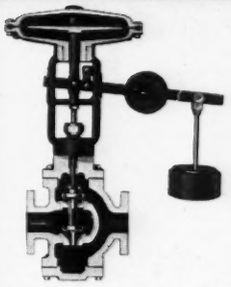
FROM ONE SOURCE OF SUPPLY.. AUTOMATIC GAS PRESSURE CONTROLLERS FOR EVERY APPLICATION.. FROM WELL TO CONSUMER!

Fisher Governor Company offers the most complete line of automatic control equipment for every requirement. High pressure pilot operated controllers for field service to extremely sensitive and accurate house service regulators. Every type designed to meet a particular set of operating conditions. Every controller individually built to exactly meet the operating conditions specified.

Take advantage of Fisher Governor Company's 62 years of experience in the manufacture of Automatic Control Equipment. Depend on this one source of supply for your complete requirements.

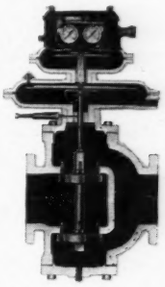
FISHER
GOVERNOR COMPANY
526 Fisher Bldg. • MARSHALLTOWN, IA.

Type 4367-F . . . Pilot-operated regulator for high pressure field service.



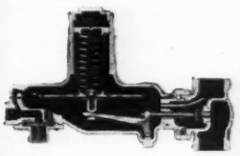
Type 10-A . . . Weight-loaded regulator for general industrial and distribution service.

Type 57-T . . . Diaphragm control valves, pilot operated for general throttling control service.

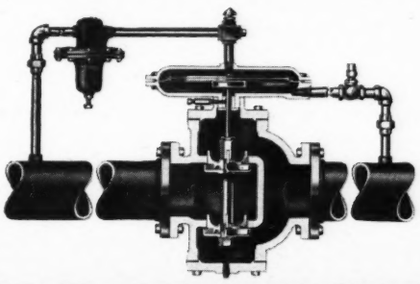


Type 43-793-R . . . Pilot operated, highly sensitive governor for boiler gas fuel control.

Type 630 . . . Self-contained field regulator for high or intermediate pressure reduction.

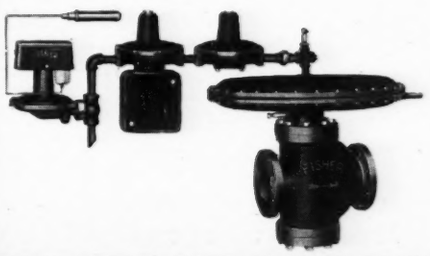


Type 733-A . . . Low pressure house service regulator with built-in safety relief valve.



Type 781 . . . Pressure-balanced, supersensitive regulator for low or intermediate regulation.

Type 840-H . . . Fisher-King pressure boosters for automatic control of reduced pressures in distribution systems.



Type 860 . . . Time-Temperature pressure boosters for low pressure distribution systems.

★ ★ ★ ★ ★ We have been a prodigal folk and conservation is a totally new experience to the vast majority of American people.

Gas ranges, like most gas appliances were taken as a matter of course. The growing shortage of all civilian goods, however, has brought into sharp focus the vital character of the gas range in its relationship to the public welfare and its importance in the overall war effort.

The gas range is the principal medium used to prepare the millions of meals necessary each day to feed the army behind the army.

★ Gas range production has virtually ceased. The remaining stock of unsold gas ranges is fast disappearing. This makes it imperative to conserve for the duration the gas ranges now in use in America's homes.

That is a job which is our joint responsibility. It is up to the gas utilities and the gas range manufacturing industry to see to it that America's most important cooking appliance is kept in the best possible condition to prepare those millions of meals each and every day.

We know of utility companies that through a planned program of service has rehabilitated hundreds of gas appliances that would formerly have been considered as being in the "must replace" category.

Correct adjustment and service will transform many a troublesome range into a reliable cooking appliance. Proper repair will bring back into useful life many a range which was apparently ready for the scrap heap.

★ ★ ★ These are emergency measures, far removed from peace time concepts and business as usual. These are emergency times, however, and troubles cannot be corrected by replacement but only through proper repair and service.

For the duration "Service to Conserve" is the necessary role of utility and manufacturer alike. Conservation of the gas range is a direct contribution to public morale and public health.

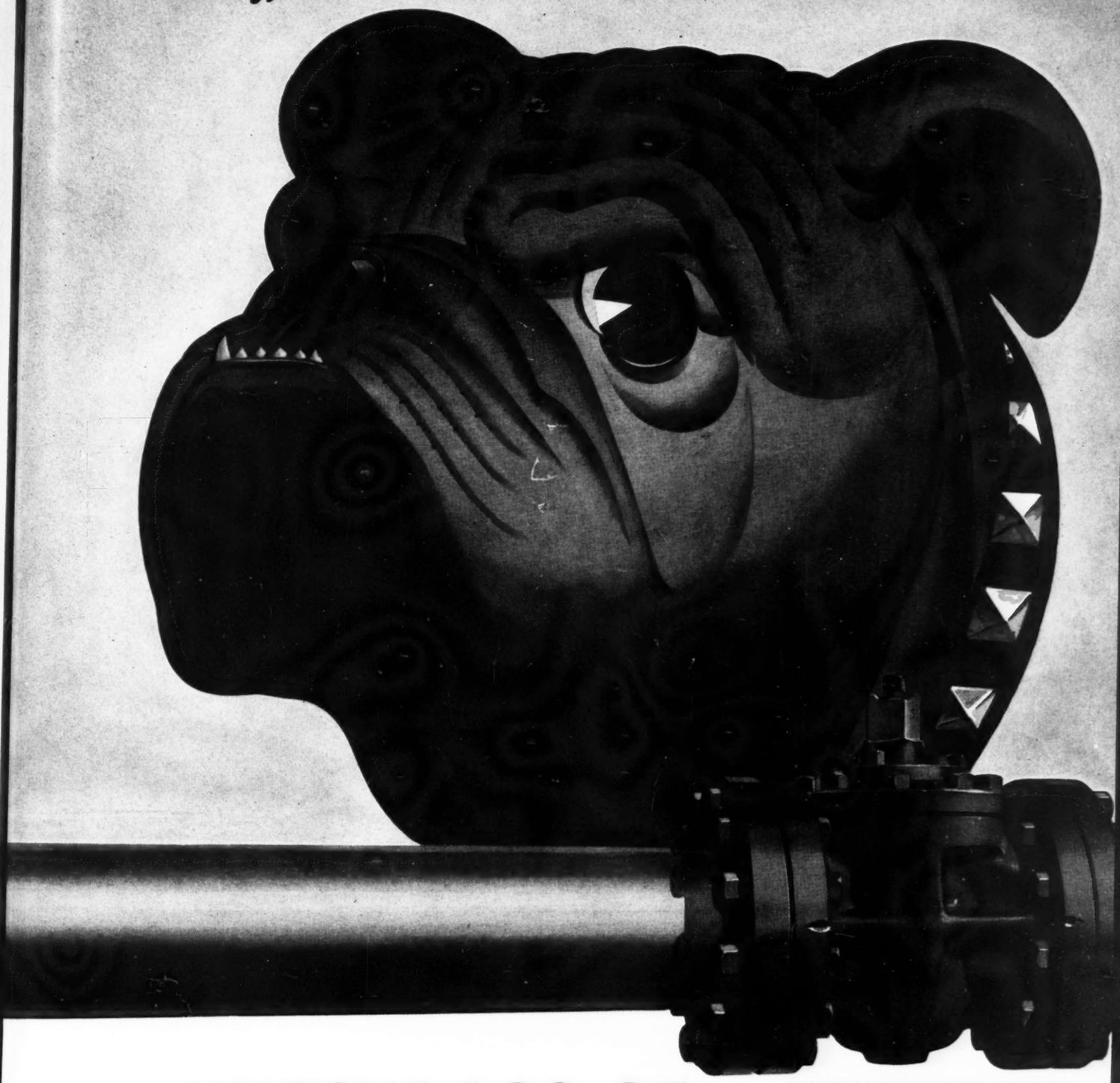
The continued operation of the millions of gas ranges now in use in American homes is as vital to the war effort as the conservation of any individual item in American home life—so let's keep 'em cooking with gas now—and Madame Homemaker will come back by the hundreds of thousands for new gas ranges when the victory is won.

CRIBBEN & SEXTON COMPANY

MANUFACTURERS OF UNIVERSAL GAS RANGES
NOW—PRODUCERS OF THE "MATERIALS OF WAR"

700 NO. SACRAMENTO BLVD., CHICAGO, ILL.

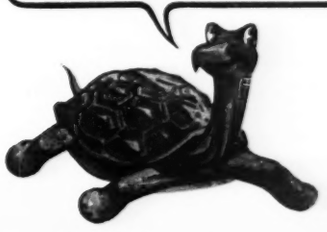
"ME AND NORDSTROMS, WE KNOW HOW TO HOLD TIGHT"



WATCHDOGS OF THE FLOW LINES

Nothing can pass a Nordstrom when it's in closed position. It's a watchdog in every sense of the word. Even if your line is accidentally loaded to twice the rated pressure of the valve, the latter will still hold tight. It's the rugged valve with precision fit that keeps upkeep down.

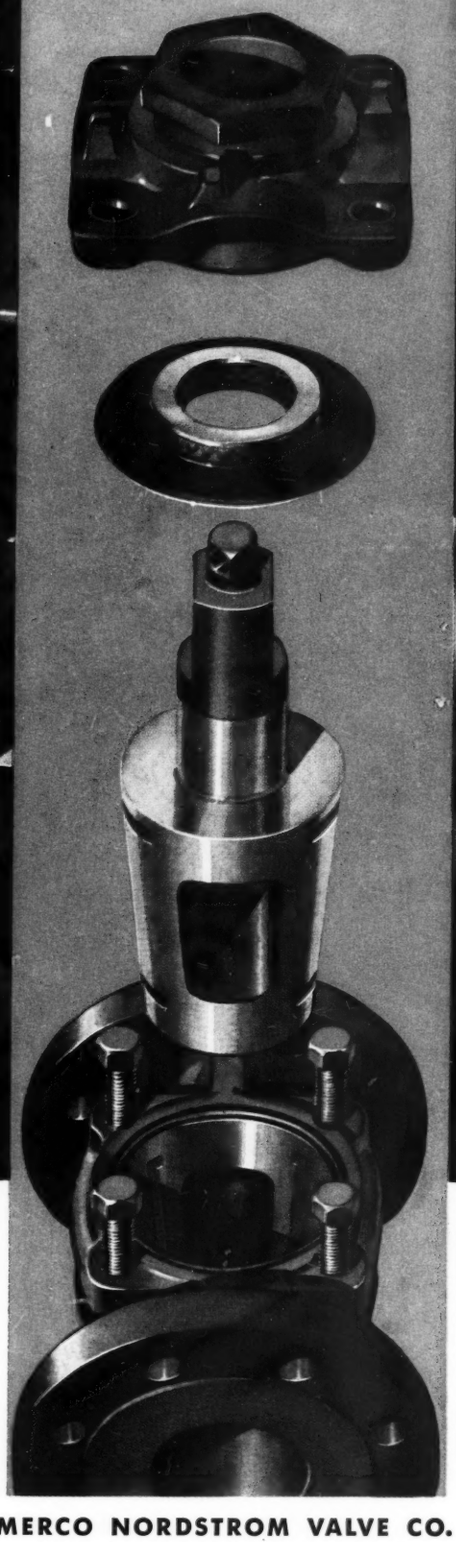
"Those Nordstrom Valves with Merchrome Coating are like me, too—hard-faced for protection."



The most valve for your money

SIMPLE—POSITIVE—ENDURING

—real economy advantages



Because...

Sealing surfaces are never exposed to line contents; fully protected against corrosion and erosion.

Positive shut-off is assured regardless of how frequently or infrequently the valve is operated.

Efficient operation is maintained many times longer than other types.

Nordstrom Lubricated Valves are of the plug cock type; the simplest of all valve designs. They require the minimum of working parts. Only the plug turns, to open or close.

The patented lubrication system assures quickest, easiest operation.

Lubricant under hydraulic pressure seals the ports against all leakage.

Ask for Bulletins

MERCO NORDSTROM VALVE CO.

A Subsidiary of Pittsburgh Equitable Meter Co.

WORLD'S LARGEST MANUFACTURERS OF LUBRICATED PLUG VALVES: GASOLINE, OIL AND GREASE METERS

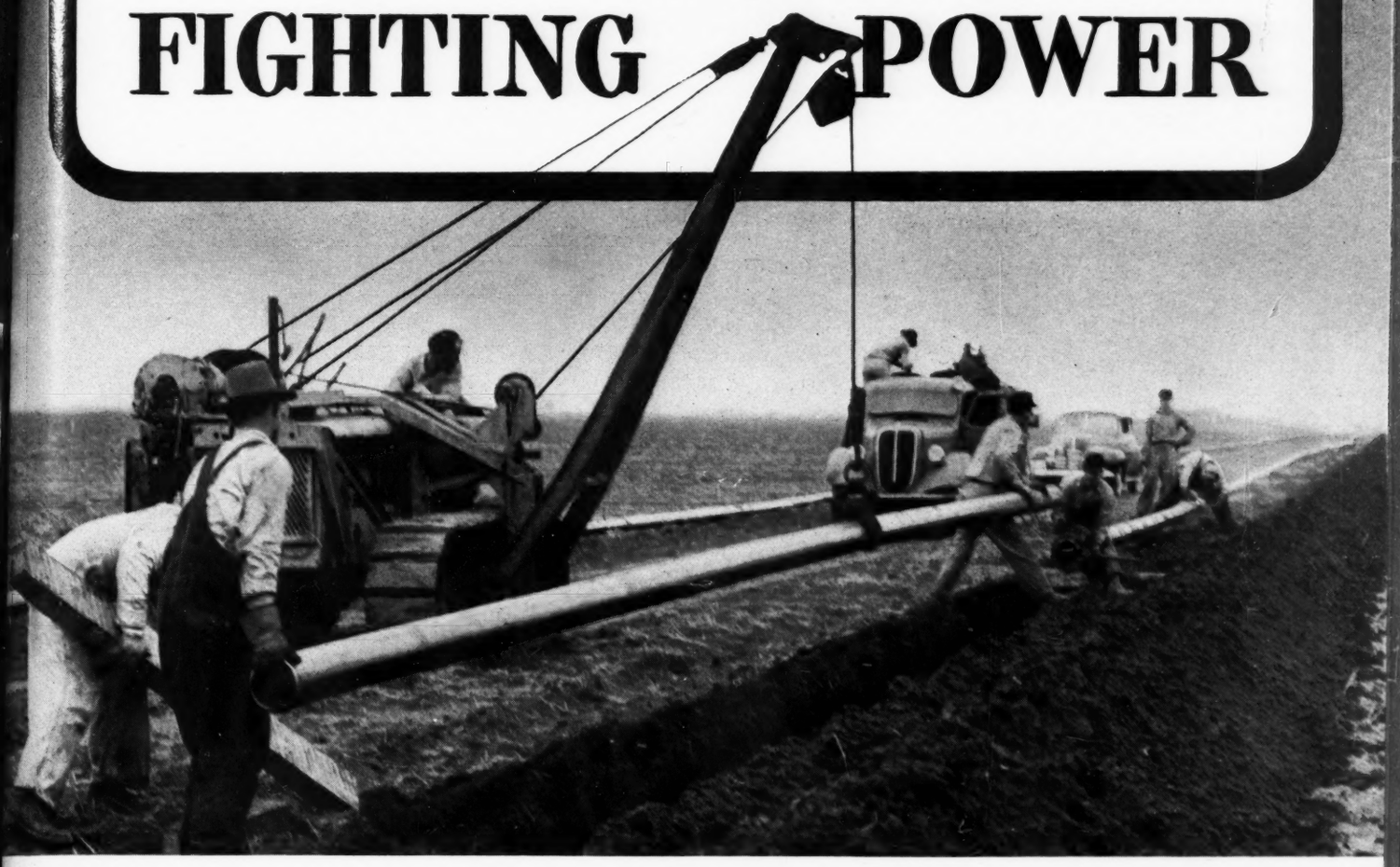
Main Office: 400 Lexington Ave., Pittsburgh, Penna.

SALES OFFICES: Boston, Brooklyn, Buffalo, Chicago, Columbia, Des Moines, Houston, Kansas City, Los Angeles, Memphis, New York City, Philadelphia, Pittsburgh, Seattle, San Francisco, Tulsa • *CANADIAN Licensees:* Peacock Bros., Ltd., Montreal • *EUROPEAN Licensees:* Audley Engineering Co., Ltd., Newport, Shropshire, England • *SOUTH AMERICAN Representative:* The Armco International Corporation • *Main Office:* Middletown, Ohio

NORDSTROM VALVES

—KEEP UPKEEP DOWN

Building a Subway of Steel
to carry the fuels of
FIGHTING POWER



Victory demands more Oil, Gasoline and Gas to build up the striking power of our war machine. And for fast, safe and uninterrupted conveyance of these vital war fuels from flowing wells to fighting action, you can't beat pipe lines—subway transports of Steel.

The broader our network of pipe lines, the faster our Army, Navy and Air Corps will hit the peak of fighting power—the sooner our industries will reach full-out Production for Victory. And that, like so many other war efforts, depends on Steel.

Republic—one of the chief fabricators of electric weld line pipe, casing and tubing, of alloy and stainless steels—has planned a lot, worked unceasingly, spent millions of dollars to meet war needs. Our tens of thousands of workers in 65 plants and mines have relentlessly pushed tonnage figures to unbelievable totals. New furnaces, new plants, new manpower have been added—and we'll keep on growing until Victory is won.

Here at Republic we know how important Steel is to Oil and Gas. So whatever it takes to fill your needs, Republic will spare no time or effort to supply it.

There are reasons for every advantage of Republic electric weld line pipe, casing and tubing. You'll find them in the exclusive Republic production processes which are visualized in "The Pipe of Progress," an unusual 44-page book of facts. Ask us to send one.

REPUBLIC STEEL CORPORATION

General Offices: Cleveland, Ohio

Howard Supply Company • Republic Supply Company
Los Angeles, California Houston, Texas
Berger Manufacturing Division • Culvert Division
Niles Steel Products Division • Steel and Tubes Division
Union Drawn Steel Division • Truscon Steel Company
Export Department: Chrysler Building, New York, New York

REPUBLIC *Electric Weld*

REPUBLIC STEEL PRODUCTION FOR VICTORY

LINE PIPE...NORMALIZED CASING AND TUBING

Other Republic products include Sheets and Plates—Upson Bolts, Studs, Nuts and Rivets—Electrunite Heat Exchanger Tubes

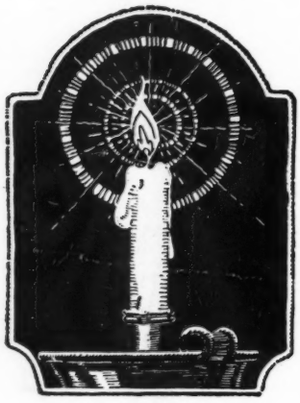
Our Best Wishes

for a

Merry Christmas

and a

Victorious New Year



THE SPRAGUE METER CO.

Bridgeport, Conn.

Los Angeles, Calif. **San Francisco, Calif.**